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Artificial Colonies

By Allen Latham

IF one will read old bee books he will be impressed in many ways, and not the least of these will be the matter of apiary increase. In those old days when queen-rearing was scarcely dreamed of there were few new colonies except through natural swarming. Bee prosperity in those days was largely measured by the amount of swarming. A few bold spirits did indeed recognize that one could not obtain the highest results with bees when the business was conducted along those age-old lines. Divisional hives were at a certain period much in vogue.

By means of these divisional hives, up-to-date beekeepers got partially away from the need of natural swarming. They to a certain extent increased their apiaries at will. But at the best they were terribly handicapped by their inability to control the queen supply. Many a divided colony caused loss rather than gain through a queen failure. One division might be left with neither queen nor means of rearing one. The difficulty of looking into the cells because of fixed combs made the matter of dividing a colony into two rather hazardous.

The coming of the free comb brought great strides in artificial colony making. More and more beekeepers came to realize the possibility of doing away with the uncertainty of natural swarming and thereby getting a larger control over their bees. I became a beekeeper at just about this epoch in beekeeping. It was forty or fifty years ago that various methods of dividing colones began to be written up in the bee papers. Being of an experimental turn of mind, I probably tried every method suggested, and being also of an inventive turn of mind, I tried many others.

I will not in this article treat of any of the various well-known methods; rather will I speak of a few unusual and interesting methods developed by myself.

Among other methods, I have sought to find how few bees can be used to build up a colony in one season. One of my hopes is to carry out the following experiment: In the dandelion season go about gathering bees from the blossoms and cage them in a dark room, giving them a queen. After a few days put these bees into a hive and see if one can thus come into the possession of a colony of bees. I actually tried this experiment in part when only eight years of age. I failed.

A few years ago I sought to find out if two hundred young bees could, if given a queen, develop into a colony. By the time the brood was mature so many of the bees were gone, the few remaining deserted with the queen. I know that one can, with five hundred bees, easily in a favorable season develop a nice little colony.

Many an amateur beekeeper has brought ruin into his apiary by carrying this division craze to the extent that fall finds him with only a great number of colonies too weak to winter well. Yet, how many colonies can a skillful operator make in one season from one good colony? I tried this out with partial success.

A powerful colony was selected in early May and made to build some fifty queen-cells. When the cells were ripe the brood was all taken and cut into fifty equal portions. From a comb a section was cut near the top bar and a piece of brood inserted. This comb was placed in a hive with other combs. Fifty hives were thus prepared. Then all the bees of the colony were given by cupfuls to these fifty hives. The fifty little colonies were then taken, after a day or so, to a lot half a mile from home and set out.

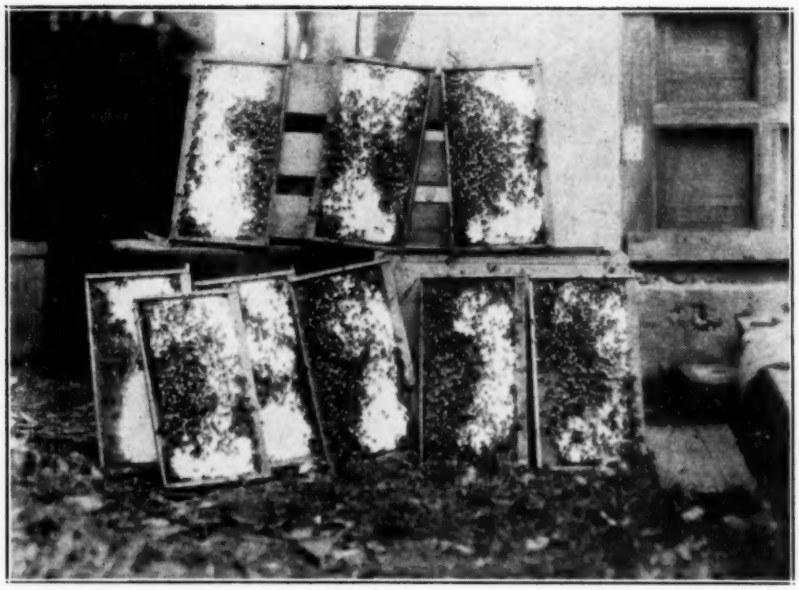
I think that I should have had pretty uniform success had the season been propitious and had I for my part been more experienced. Many cold rains bothered and other mishaps set in to hinder success. A dearth of nectar started my home yard to searching far and wide. The weak colonies were discovered and robbing got a fine start. Nearly thirty of them were wiped out. Some of the remaining ones had to be helped out some.

Eventually I started a new outyard with twenty colonies surviving from the original fifty. Were I to try again I feel confident that I could come close to the fifty final.

Using the baby nuclei in my queen matings, and restocking each with fresh bees for each queen, I have every day or so the old bees from some fifty of these mating boxes. What is to be done with these bees? Sometimes they are dumped in front of a weak colony; sometimes they are given back to the cell-building colony, but more often they are given a queen and a new colony is started.

Many of the colonies thus made from mating boxes go on and become successful colonies, but many fail. The age ratio of the bees is not good; the bees are all over ten days of age. It is easy to introduce a queen to bees under ten days of age, and almost as easy to introduce one to bees over thirty days of age. The bees from eleven to twenty-nine days old are the hardest to introduce queens to. Queens in these colonies, made up mostly of bees about fifteen to twenty-five days of age, frequently turn up missing after a few days.

Several years ago, while in the teaching business, I was of course troubled by losing swarms during school hours. Seeking a remedy, I took up shaken swarms as a solution to my problem. I departed probably from the beaten path of making shaken swarms. Finding a colony getting the swarm fever, I would set



Latham combs of colony formed in October of bees taken from extracting bodies.

aside its hive and place over the stand an inviting branch suspended from a tripod. This leafy branch was allowed to touch the ground. Then most of the bees and the queen were shaken out by this branch and the old hive set on a new stand and given a caged queen or a ripe cell.

The bees shaken would at first be very uneasy, but after an hour or so would cluster like a natural swarm. After three or four hours they could be hived anywhere and would conduct themselves after the manner of bees swarming naturally.

Possessing at this time more colonies than I can easily care for, I seek to check increase, but in the fall of the year I find that there are nearly always a few colonies which through oversight are not fit to winter. One may have a drone layer. Another may be queenless and consist only of old bees. It is wise to close the entrances of such colonies and shake the bees off the combs out upon the grass. They will perish anyway, and it is not profitable to have them first eat up several pounds of honey before dying. The stands thus deprived of living colonies must be restocked. Of late years I have hit upon a happy method of keeping up my apiarian counts.

My extracting yards are run on the two-story plan, and late in summer each colony needing it is left with one extracting body to catch the fall honey. In early October these bodies are brought home. It is a bother to make extra trips to rid the bodies of bees, and since most of those colonies have too many bees anyway the bodies are brought home with whatever bees are in them. At times, if I find that an unduly large proportion of bees appear to be in a body, I shake out some of them before placing the body on the car. I do not care for over six or seven pounds of bees for winter I find that colonies having eight or nine pounds consume more honey and come on too fast in spring for this particular locality.

Upon arrival home the bodies are, by various methods which I will not describe, deprived of the bees. Bringing in thus some three hundred bodies, I get a bushel or two of bees each October. Any weak colonies in the home yard are helped out with a quart or so of these bees. What remain are made into new colonies.

Some three years ago I had nineteen pounds or so of bees left after distributing what I needed. I prepared two hives with sheets of foundation. I painted this foundation with wax to help the bees. Each hive was given about nine pounds of bees with a caged queen. Each was fed all the syrup, five to three mixture, that it would take. In about one week the frames were full of beautiful white comb, largely filled and sealed. The two colonies the next spring were taken to outyards where empty stands called for them.

I set out the combs, after a week or so, one warm day in October and took a picture of the result. Ten days or so earlier these combs were only foundation.

I do not recommend these various stunts to beginners. I do them largely for the fun of it. The beekeeper who keeps his nose on the grindstone all the time does not get all the pleasure possible with his bees. Experiment when you can afford to do so.

(This is a very interesting article from our active correspondent Mr. Latham, but we think the advice he gives in the last paragraph is very good. Like him, we urge beginners not to try any of the stunts he mentions.—Editor.)

Bees Can Remember the Dinner Hour

Prof. Dr. Karl v. Frisch, the well known authority on the memory and "recruiting dances" of bees, has recently done some work on their sense of time. He fed the bees daily between 1 and 3 o'clock and found that they had a distinct memory of their meal time, arriving at the feeding place from half-past twelve onwards, even when there was no syrup provided. By ingeniously devised experiments he showed that they did not merely notice the position of the sun, or feel the variations of atmospheric electricity, which might have been thought to be responsible for their apparent recognition of the hour; so that it appears that bees have a real power of remembering the hour at which they may expect to find food in a given spot. He further showed that they can only remember a particular hour of the twenty-four; when he fed them every nineteen hours they failed to remember when dinner time was due. Their sense of time may therefore be due to some factor, varying throughout the day, which is unknown to us; but it appears more probable that they really have a sense of time, though a limited one.—Bienen-Vater, Austria, January number. A. D. B.

(Mr. Langstroth had noted this years ago. See paragraph 33 of the "Honeybee."—Editor.)

From an Old-timer

I was married in October, 1869, and in the spring of 1870 a friend of my wife gave her a stand of bees. I began to study their habits. The bee business was little understood then. The first stump I struck was a man peddling a mothproof hive and selling farm rights. I bought one of his hives and he transferred the bees for me. He had some kind of drug to put on his tongue to tame the bees. That was my first lesson; then I got hold of Root's magazine and gleaned some good lessons from his experience. Later I got his A B C and the American Bee Journal.

I was born in 1845, so was six years old at the time of the California gold fever. Now I am past 85 and the Missouri secretary says I am the oldest keeper of bees in the state. I first met the present editor of the American Bee Journal at the Keokuk convention in 1890. A. I. Root and his son Ernest were there. Dr. C. C. Miller was also there and I heard him play and sing. We had a ride across the river to the Dadant factory and met Charles Dadant, who has been dead for many years.

J. T. Powell, Kirksville, Mo.

AMERICAN HONEY INSTITUTE
FOUNDED 1928
BEE INDUSTRIES ASSOCIATION OF AMERICA
CHAMBER OF COMMERCE BUILDING
INDIANAPOLIS

DR. H. E. BARNARD, PRESIDENT

Institute to Help Train Demonstrators

To find out about trained demonstrators for commercial honey bottlers, the Institute loaned Miss Fischer to Preserves and Honey, Inc., the last two weeks in March. It was a good chance to get actual experience with the buying public and to make a study of the types of women available for demonstration work and the results trained honey demonstrators could secure.

The first week was spent in selecting workers. The Pratt Institute in Brooklyn was found most helpful and three of their graduates were selected. Three more were chosen at the Brooklyn Food Show. This gave a good chance to study the difference between the commercial barker-type of worker and the nutritional-trained worker.

During their training it was interesting to note how really amazed the students were to see that honey had such a great variety of uses. In the last day of class work the combinations that had been made were passed around and the workers had a tea party. After the soon-to-be demonstrators had eaten everything—sandwiches, salads, tea wafers, cake filled with honey chocolate—and drank the honey tea, they were most enthusiastic.

These workers were then assigned to stores and Miss Fischer called on them regularly, checking on their displays, watching their approach, how they overcame the arguments brought up by the public, and the attitude of the proprietor toward them. Miss Fischer herself demonstrated for two days in one of the fashionable steamer-basket stores in Brooklyn. She is convinced that honey demonstrations are the quickest, easiest, and best way to get the housewife to buy honey and to use it.

The following fundamental points should be observed in making displays or holding demonstrations: The result of the use of honey must be clearly shown; the demonstrator must have a working exhibit; dishes must be varied every day, and the display must be conveniently located in the store. The demonstrator herself must be of good, clean appearance, be able to talk well, have a good knowledge of nutrition, must know all about honey, and she must know how to "drizzle" honey effectively.

Institute Will Attend Association of American Home Economics

The Kellogg booth in the meeting of home economic workers in Boston, July 1 to 5, has offered the Institute a part of its space for a honey display. To make final arrangements for the booth, Miss Fischer visited Battle Creek April 22 and made plans with Miss Barber, of the Kellogg Home Economics Department. Miss Barber, with her three home economics assistants, has been testing special honey recipes for the Institute until the latter gets its laboratory equipped.

U. S. Bureau of Home Economics Includes Honey in Radio Service

Dr. Louise Stanley, chief of the U. S. Bureau of Home Economics, reports to the Institute that honey recipes are included in their radio service. It is also expected that the bureau will get out a honey circular on tested honey recipes which are being worked out.

Knox Gelatine Company Uses New Easter Dessert Recipe

Miss Fischer's recipe for Honey Bunnies' Parade, recently sent to the Knox Gelatine Company, was received by them very favorably. Copies were sent to the educational workers of the company in the field for use as an Easter suggestion, and they reported having made the dessert before many groups of women,

(Continued on page 308)

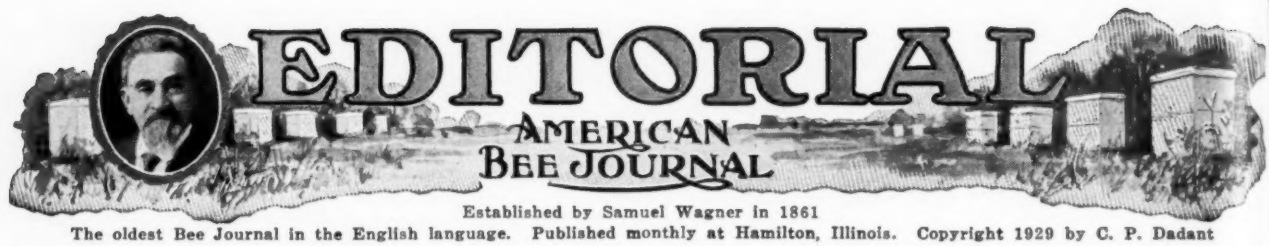
INTERESTING PERSONALITIES

CHARLES W. QUINN

Educated as an engineer, Charles W. Quinn has put his training to good use in his study of problems relating to beekeeping. He has built delicate scales for determining the weight of the load of individual worker bees; he has constructed a feeder which registers the amount of food removed, and a specially designed entrance for use with colonies of Caucasian bees to avoid propolization of the hive.

His greatest achievement, accomplished with the assistance of his grandson, Harry Laidlaw, is the controlled mating of queens by means of especially designed preparatory instruments and hand mating. The success of this work is vouched for by C. H. Smith and other Florida bee men who are acquainted with his results.

Quinn has had a wide variety of experience in various lines of endeavor and is spending the evening of life in breeding Caucasian queens at Englewood, Florida.



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Supering and Prevention of Swarming

It is quite important to place the supers upon the hives before they become too crowded. One of the principal causes of swarming is due to the lack of room or the anticipation of the lack of room for surplus honey, by the bees.

When the bees whiten their combs near the top of the brood chamber it is a sign that they are harvesting more honey than they consume. The building of comb by the bees on the outer edges of the brood chamber is never carried on until they find themselves crowded for room either to breed or to store honey. We are very much inclined to believe that it is when a surplus of honey is brought in daily that the young bees, having their stomachs well filled, change this surplus to wax, by digestion, without any anticipation of the need of combs. Thus the spaces nearest the brood are filled with newly built or elongated cells, and fresh nectar is seen shining in every direction.

Often, at this time, there is a tendency to swarm, especially if the hive is crowded with bees, the ventilation rather inadequate and the weather warm.

Bees may prepare to swarm when none of these causes appear very plainly. But one will always notice some discomfort among the workers. Either there are many drones and they are in the way of the bees or the entrance is too small. Sometimes the queen is getting old and slackens a little in her egg-laying. At once the bees will notice it and will begin to rear queen-cells to replace her This causes displeasure to her and she shows a disposition to swarm, which is eagerly accepted.

For these reasons we have ascribed natural swarming to several causes: The age of the queen and her apparent or supposed weakening; a surplus of drones, who keep themselves in the warm part of the hive and who, in the sunny portion of the day, crowd the entrance and are in the way of the workers; too small an entrance for the constantly growing population; too much sunshine upon the outside of the hive, rendering it uncomfortable during the warm days. But above all things, the shortage of room, both for the egg-laying and for the storing of surplus, is the principal cause of swarming preparations.

Often the surplus storage room is unavailable because of the difficulty for the bees to provide ventilation within it. I remember, years ago, when we used little glass boxes holding about five pounds of honey when filled, in which the bees refused to go, when we discovered that the one-inch round opening at the bottom of these boxes made the inside almost impossible to ventilate. That question of ventilation is one of the principal causes of bees swarming in the production of comb honey. The one-pound boxes, arranged with separators and sometimes closed on all sides except the bottom, make it inconvenient for the bees to store honey, and one often wonders that they are willing to go into them at all.

There are, of course, some instances when bees will swarm with everything apparently arranged for their comfort. These are exceptional. It is when the space for supers is provided too late, or when the chances for ventilation are inadequate, that the preparations for swarming are most likely to occur.

There is less desire for swarming when extracting supers are put on, for several reasons. The connection of the super with the body of the brood chamber is much freer with the extracting super than with the sections; then the supers are likely to contain comb already built, which draws the workers up into them.

We never leave a colony to itself in which the bees cluster on the outside, for it is a sign of discomfort, unless the season is over and there is nothing for them to gather. We raise the hive from its bottom, one, two, three or more inches, in front, and occasionally set the upper story back an inch or two to allow ventilation to pass through and out. But this must not be left permanently, as it gives too much chance for robbing.

Young queens, no drones, plenty of empty combs, plenty of ventilation, the brood combs spaced 1 ½ inches apart from center to center, instead of the official 1 ⅜; with these provisions, if the room has been given in time, we have very little fear of swarming—in fact so little swarming is usual that we do not find it profitable to watch an outyard for the few swarms that may go astray.

But, above all things, we must keep ahead of the bees and not let them think that they are going to be crowded. Comb honey supers should be provided with bait sections already built and full sheets of foundation. It is an economy, besides helping to prevent the swarming fever.

Bees and Apple Pollination

We are highly pleased to peruse the Special Circular No. 7 issued by the Extension Service of the Massachusetts Agricultural College of Amherst, one of the most reliable colleges in the United States.

The circular in question was written by C. L. Farrar, of the Department of Entomology of the above named college. It verifies and confirms all the studies thus far made on the question of fruit fertilization.

Mr. Farrar cites an observer of a century and a half ago, Sprengel, who, in 1787, grasped the idea that flowers were designed so that they would not be self-fertilized and that nectar was produced, in most cases, to attract insects, which, when working from flower to flower, transfer the pollen and cause them to be cross-fertilized.

If anyone doubts that this is indeed the positive purpose of nature, we may indicate that the crossing of races and of families was even provided in many animals and in man himself. The fact that there is an antipathy to the mating of brother and sister in the human race, that it is considered immoral, and that even the mating of cousins is frowned upon; that marriages between cousins often bring unhealthy or imperfect offspring, we can readily accept the assertion made that nature has provided for the mixing of races, in all things.

The work in question brings out a number of facts regarding the need of fruit trees, and apple trees in particular, being so planted that different varieties may grow closely together, so that bees and all flower-loving insects may carry pollen from one kind to another.

Since the planting of large orchards has upset the balance of nature in providing a sufficient number of insects as pollinators, the orchardist, so says this authority, must look for additional pollinators supplied as necessary. A value of as high as an average of five dollars per colony is put upon the possible work of the bees in pollinating an orchard. In fact, according to a number of authorities, the crop of an orchard has been increased by as much as $250 per acre when enough bees were brought to it for the fertilization of the flowers.

Some fine evidence was given us, in our own orchards, this spring, of the need of bees. We had a very bad blossoming season. It rained and strong east winds blew that hindered the bees in the work upon the blossoms. The result is that the trees located on the east side, where

the bees had difficulty to work, do not bear much fruit, while the trees in sheltered spots, where the wind had little force and where the sun encouraged the bees, are bearing a good crop.

This tallies perfectly with the observations recorded at Amherst by Mr. Farrar.

Let us quote one of the closing paragraphs of this circular:

"It is evident that sooner or later growers needing thirty to one hundred colonies may find it profitable to cooperatively invest in enough colonies to meet their need and secure the service of a trained beekeeper to manage them."

This is evidently taking the matter seriously. This circular confirms our booklet, "Busy Bees Bring Bending Branches." The time is coming when orchardists will understand that bees are needed.

Corn Sugar Again

The present extra session of Congress was called with the express purpose of confining itself to farm relief and limited tariff revision. Apparently the members had no such ideas, for hundreds of bills on all kinds of subjects have already been introduced. Among them is the corn sugar bill which has agitated the beekeepers for some years past. Those who boasted that the beekeepers had "killed the corn sugar bill" will discover that the corn sugar bill is not dead. Although beekeepers were active in opposition to the bill, they were not alone, for men in many other walks of life were also opposed to its passage, and for the same reasons.

The new bills, H. R. 2154 and Senate bill 685, have been referred to the Committee on Agriculture, but it hardly seems probable that action will be taken during this short session. We are promised notice by the committee in case a hearing is held.

The special feature of this bill, as of its predecessors, is as follows:

"Nor shall any manufactured or prepared food product be deemed misbranded if such dextrose and/or levulose be used therein as ingredients without declaration on the label of their presence."

Maple sugar, maple syrup, sorghum and various other syrups are manufactured products, and this bill appears to open the door wide to any mixture of corn sugar in their manufacture. The American Bee Journal is opposed to any exceptions in the pure food law. The present law does not do injustice to any product in requiring that the purchaser be told what he buys. Apparently the only way to stop this continued agitation on the part of corn sugar manufacturers is to have introduced a counter bill, as suggested by the Department of Agriculture at the time the question was first opened, which would require all sweetening agents to be shown on the labels of all food products.

We have recently received a letter from a reader suggesting that such action be taken, and we approve. However, when the department offered this suggestion the corn sugar people were the first to object. This objection on their part indicates a lack of sincerity. Apparently they feel that the only chance to sell their product as a sweetening agent is under cover. Certainly there is a very real prejudice against corn sugar even among the wives of the farmers, for whose benefit it is so loudly proclaimed that the bill has been introduced.

Competition

Never in the history of the world has the competition for business been keener than it is today. Every day some new product appears and every new product makes it that much harder for the things already in the market to hold their volume of business. When the purchaser with small income adds something new to his requirements, it must replace something which he has formerly used, unless he can find some way of increasing his purchasing power. In the bid for business two things are especially noticeable in present day trends. Manufacturers are using every possible means of producing a greater volume of goods with present labor and equipment in order to reduce the cost per unit of production. In addition to producing to sell at lower cost, there is the ever increasing effort to attract public attention by advertising.

Present day advertising expenditures are staggering in their totals, yet so effectively are they used that products which are not advertised are likely to be soon forgotten. Such food products as butter and eggs, long regarded as staples, are now advertised in color in full-page displays in the leading magazines. Apples, oranges, prunes, a hundred well known staples follow the lead of the new specialties. They have to do so to hold their place. We as beekeepers must keep step with the times. We must produce more efficiently, must increase our volume or reduce our costs, and we must continue to remind the public that honey is still nature's best sweet. What cannot be done individually must be done collectively.

Foulbrood

For many years past, a liberal portion of the space in all the bee magazines has been given over to a discussion of foulbrood, its cause and cure. In spite of endless discussion, extensive inspection and continuous treatment, the disease has continued to spread. It appears that for every case treated successfully another only succeeded in spreading the disease.

There is no question but that the disease can be treated and bees and equipment saved if care enough is used. However, it is now apparent that treatment is often more expensive than the destruction of the diseased colonies. If every case of disease is thus disposed of quickly and completely the spread is checked and in the long run money is saved to the beekeeper. Had the destruction of diseased colonies been consistently advised from the beginning there would have been an enormous saving to the beekeepers and the disease would never have been so widely spread.

It is only where destruction of diseased colonies is the practice that substantial progress appears to be made in control. The careful beekeeper is able to keep it under control by shaking diseased colonies and cleaning the hives, but there are enough who overlook some detail to permit the constant spread among healthy bees. Some of us who have had official responsibility for disease eradication have been slow in adopting this view, but of late it certainly appears to be the cheapest as well as the quickest way out.

Where a large number of colonies are diseased it may be advisable to resort to treatment until the percentage is reduced to a point where losses will be moderate. As a general policy burning seems best. F. C. P.

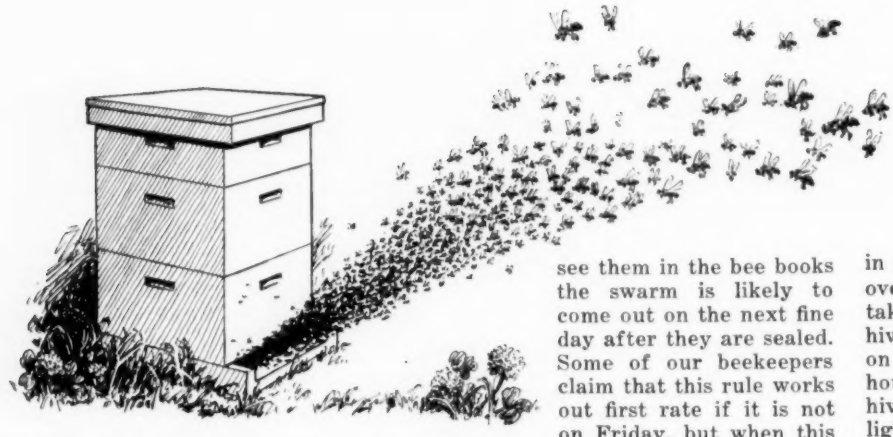
Hive Painting

I do not know how many of our readers are in the habit of painting their own hives. We used to do it, often, in spring. A carpenter who manufactured hives for us, before the time of hive manufacturing establishments, used to paint them by piling four or five hives in an even stack and using a large brush. It was a quick job. But I soon found out that the very parts that need painting most were the parts that were untouched by the brush. It is the lower edge of each hive, the part that rests upon the bottom board, and the bottom board itself that need painting most, for that is where the moisture is retained longest.

When a beekeeper keeps at the business for a number of years, when he buys and sells colonies of bees, he often has bees in unpainted hives. A very quick job may be done by painting the hive with the bees in it, some cool day when the bees do not fly. But after doing this two or three times, I made up my mind that the only way to paint, decently and in a lasting manner, a hive, was to take the bees out of it and have it so that you may turn it bottom up and paint the edges as well as the surface.

A hive that has been used, unpainted, for two or three seasons, is in the best shape to take paint and retain it. The wood does drink a lot of oil, it is true, but after such a hive has had two coats and its lower edge has also been well painted, it is likely to last twice as long as a hive which has received paint in the popular way.

A hive should last thirty to fifty years, in the weather. But it must be protected by paint, in a thorough manner. Although I no longer work in the apiary, I still have opportunity to see, occasionally, a hive that was painted by me forty years ago, and such hives are good yet.



How I Hive a Swarm

By L. T. Floyd

THE most interesting work to me in connection with beekeeping is the hiving of swarms. I look back to the hiving of my first swarm as a red letter day in my experience.

Sometimes we have students who go out from our classes and practice swarm control rules so well that they write in two or three years after and tell me that they have never had a swarm. All that I have to say to them is that they have missed a lot of fun. Nothing else that I know of will start excitement so quickly on the ordinary farm; will induce the hungry to leave their dinner or other equally important engagements, as the swarming of the bees. Beekeepers who have never looked at their hives since they moved them from the cellar will at once get busy and sometimes the whole household lends a hand. If the apiary is in a village, there is always a group of spectators, and at the eastern home of the writer, where many berry pickers were engaged in the summer, it was about impossible to keep them in the field when a call came from the house that the bees had swarmed.

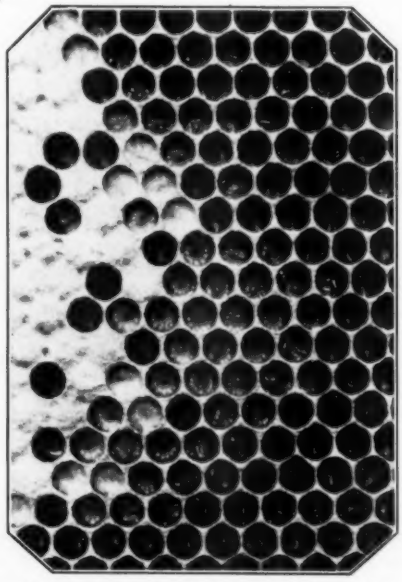
There are many ways of hiving a swarm, and I do not claim my way to be the best, but this is how I go about it. The question is generally asked, When are they likely to cast the first swarm? There is only one way to be sure, and that is to open the hive at weekly intervals and when we find the queen-cells as we see them in the bee books the swarm is likely to come out on the next fine day after they are sealed. Some of our beekeepers claim that this rule works out first rate if it is not on Friday, but when this happens on Friday their bees wait until Sunday to swarm. Just another excuse to stay home from church, if you are looking for one. I mention the bee books because I once heard a beginner remark when she was first shown a comb with sealed queen-cells, "Oh! they are just like the picture in the bee book; strange, wasn't it?"

I once opened a hive for a beginner. He asked the usual question, "How long do you think it will be until they swarm?" Queen-cells were started. I guessed a certain day and it happened that they swarmed on that day. He wrote me at once demanding, How did I know? I had explained to him, but he was not listening, but remembering the day, he thought I was a wonder. It was simple enough for anyone to do.

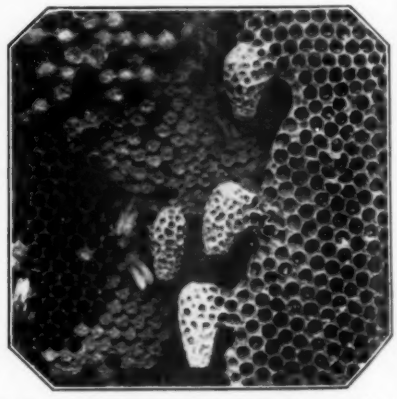
Picture No. 1 shows a swarm clustered in a convenient place to hive. These first swarms generally emerge some time between 11 o'clock in the morning and 1 in the afternoon, and, having an old queen with them, will cluster on a nearby tree or other place that suits them. They may remain clustered for some time; if in an evergreen tree they may stay over night, but the good beekeeper takes no chances and prepares to hive it at once. While the swarm is on the tree he proceeds to the honey house and brings out his prepared hive and also the smoker, which he lights, and, opening a hive, secures from it a comb of open brood. He shakes all the bees from it and examines it to be sure there are no queen-cells there. He then places it in the centre of his prepared hive. The other frames will contain combs or frames with full sheets of foundation. He puts the cover on the hive and places it on the ground near the swarm. If he has not worn a veil up to this time, he dons his veil and with a sharp saw proceeds to remove the branch on which the swarm is clustered. He must be careful in severing the branch, as the weight of the swarm will surprise him, as the bees are carrying enough honey with them to start the work on their new house, enough to do them for about four days, and if sawn off too abruptly all the bees will be spilled on the ground. It is better to cut the bark on the underside first, so it will not strip when finishing the upper cut. He then carries the swarm to the hive and dumps them against the entrance. If the ground is covered with grass, a jute sack spread at the entrance will keep them out of the grass.

It seems to be the natural thing for the bees to rush into a cavity, and it is surprising how fast they will run into that hive. A beekeeper of my acquaintance one day went out to hive a swarm. He placed his hive on a large, shallow box turned bottom side up, but did not notice a knot hole about an inch across di-

No. 1—A big, low cluster, easy to hive.



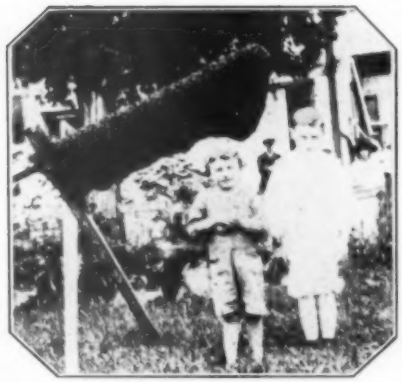
No. 2—Open brood like this will hold the swarm.



With finished queen-cells like this, a colony is most likely to swarm.

No. 3—Cluster on post of a wire fence; a hard swarm to handle.

No. 4—Two clusters, but only one swarm.



No. 5—A very large cluster which may be composed of several swarms.

rectly in front of the hive entrance. He shook the swarm at the entrance in the usual way and went away to his other work. When he came back at night to carry the hive to the stand in the apiary he removed the cover and found no bees in the hive, so decided that the swarm had flown away. A few days afterwards he noticed bees flying from the hole in the box. They had gone down the knot hole instead of going in at the entrance. A week later I helped him remove it and put it in the hive.

Sometimes in the excitement the swarm is spilled. If this happens, take the branch from which they fell and hold it over the cluster on the ground, and they will all go back on the branch again, as they seem to have left a scent on the branch which attracts them.

Where there are no trees near the hives it is a good plan to hang an old basket on a stake in front of the hives. The swarm will be likely to cluster on the basket, and if you get your first swarm there nearly all the swarms coming later will go to the same spot. In one of our prairie apiaries that basket should be tied to the top of the stake, as a wind storm some night might carry it miles away.

Some will say it is not necessary to wear a veil, as the bees are so full of honey they will not sting. In my early experience I once attempted to hive a swarm from the rough bark of an apple tree. I have never trusted a swarm since that time. As soon as you begin work around a swarm you will find out whether they are quiet or not. Be careful of swarms that have hung over night or have been out during a shower of rain.

Then the question is asked, Why cut the branch from the tree? If the tree is a valuable one, this is not necessary. The swarm can be shaken into a pan or basket and then dumped at the entrance.

Picture No. 2 will show what I mean by open brood. If the comb of open brood is not used there is a danger of this swarm flying away next day. Not one swarm in a hundred will leave these baby bees once they enter the hive. Combs of honey or sealed brood do not have the same effect.

Picture No. 3 shows a swarm clustered on the post of a wire fence. This can neither be shaken nor dumped. What will we do with it? Place the hive on the ground as before, hold a pan or basket below the bees, and with a handful of grass or weeds brush them into the pan and then dump them as before. Do not use a pan that has been sitting in the sun. If hot, you had better watch out.

No. 4 shows two clusters. Don't get the idea that this is two swarms. Shake them together and be done with it.

No. 5 is a picture of a very large swarm. This was sent to me by one of my eastern friends, who assured me that there were seven swarms in this cluster. He explained the size of swarm could be judged by the size of the boys; the smallest one was a good-sized 7-year-old and the bigger one 11 years. The swarm was bigger than either of them. Will we hive these as before? Certainly not. If we did we would probably find it queenless a few weeks later when we examine it, as the strange bees will ball and injure the queens that are strange to them and probably cause the death of all the queens.

I once visited an apiary in eastern Manitoba kept by a Ruthenian. At the time of my visit there were 150 colonies, many of them so full of bees that they hung out at the entrances, and all were strong. The trees around the yard showed stubs in every direction where swarms had been cut down, and as I knew these people allowed their bees to swarm, naturally it dawned on me that he must have a lot of trouble with swarms uniting, as generally happens when two emerge at the same time. I put the question, "Do you have trouble with swarms uniting?" He shook his head, "no understand." Then I began to talk partly with my hands. Pointing with my finger, I said: "You have one, two, three, four, five swarms and all go together — one big swarm?" "Ah, yaw! four, five bushel." "Then you hive one, two, three, four, five, or just one?" He was all interest now. Rushing to his honey house, he came out with two or three rolls about the size of a broomstick and made of screen from a threshing mill, rolled into little rolls about six inches long. These were fastened with wire and closed with pieces of broken comb jambed into the ends. He explained that he placed his prepared hive near the big swarms and also had a pail of water and a dipper near. With his dipper he scooped off a quart or more of bees and scattered them on the ground until he found a ball of fighting bees. This he picked up and threw into the pail of water. As they spread out on the surface he picked out the queen and put her in one of his tubes and fastened her in. Then he put this in his hive and scooped in enough bees to make a strong colony. He then brought another hive and repeated the process until he had rescued most of the queens and made his divisions. He placed the hives on their stands and released the queens two days later. This is the way to hive such a swarm, but we use regulation queen cages for the queens, rather than the rough ones used by my central European friend.

The cover picture shows the appearance of a hive at the entrance of which a swarm has been shaken. When they cluster on the front and are slow to go in, brush them down with a handful of grass and they will start running again. It is important to get the queen inside the hive.

Smoke should never be used on a swarm unless you want to drive it

back to the hive from which it emerged.

Newly hived swarms should be placed on the stands they are intended to occupy as soon as they have stopped flying for the day, and the hives should not be smoked or disturbed again until three days have passed. After that time they can be worked like any other colony.

(This is very good, but I can give him another kink. When a swarm clusters on a post or on some spot from which they cannot be carried, just let him take that comb of brood and hold it next to the swarm. The bees will at once forsake the spot on which they are clustering for the comb of brood. If the queen is in sight of that comb of brood she will run to it. We have often removed swarms and hived them without disturbing the thing on which they were hanging. The same may be said of a swarm that is hanging too high in the air to reach it otherwise than with a pole. Even an empty comb fastened to the pole will secure the swarm.—Editor.)

Honey Cakes de St. Gall, for Bakers

Heat twenty pounds of honey with four pounds of white sugar and two pounds of water. When cooled add one-half pound of cinnamon, one-fourth pound of cloves, two nutmegs, two ounces of ammonia, three ounces of potash and twenty-five pounds of flour. Press in greased wooden moulds with different designs. Wash with milk and bake on floured tins.

The Range Hog, Another Thorn in the Beekeeper's Flesh

By Josephine Di Lullo

"LITTLE fleas have lesser fleas to bite 'em, and so on, ad infinitum," may or may not be a comfort to us, depending upon whether our peculiar mental makeup really believes that misery loves company. But whether we love it or not, we all have our full share of it.

The apiarist fights foulbrood; growls about unseasonable weather, losses by reason of flood, poisons, skunks, traps, toads; fights grassfires; talks loudly of shotguns for those honey thieves who, not content with what they steal, leave hives uncovered and a wake of destruction behind them; tells plainly in public gatherings and in our printed pages just what he thinks of the honey dumpers. But there is one other "varmint" on which there is not only no bounty, but no open season.

By this is meant the "range hog," and they are most pestiferous—perhaps worse here in the West, where migratory beekeeping is an important occupation.

If you are a moderate sized bee man and your neighbor, who owns the place next to you, decides to have a few stands of bees, you can pray that he looks after them properly to guard against disease, and can go over and help him go through them occasionally and can figure him as another soldier in our army, and the chances are that there is plenty of feed for your bees and his too.

But if you have an extensive—and expensive—apiary, which is as large as you think that particular area will support with any degree of satisfaction, it takes a lot of Christian fortitude to welcome a stranger who drifts in, after the assessor has been around, and unloads a few hundred colonies, just over the fence from yours.

Last year California passed a rigid law, requiring inspection of all apiaries before removal, and demanding a clean bill of health in every particular, before they might be moved.

So far the state has had to depend upon ordinary, finite human beings for inspectors, and it takes a clairvoyant to be sure that the bees moved are really those mentioned in the certificate of inspection, and it would take Mussolino himself to be sure that diseased stuff is not dumped in the brush when the open road repeats its call.

Shasta county had no American foulbrood and most of the beekeepers had never seen a case of it until one of those generous souls, who always hankers to divide what the other fellow has, came up from the central part of the state with a carload of bees, for the star thistle. The bees were, a large proportion of them, more or less diseased; they were improperly loaded in the car, and shifted cargo, and loosened tops, bottoms, and supers, and the bees poured out and made life hectic for every person unfotunate enough to have business near the railroad, and as the station is the center of the business part of the town, there was general excitement.

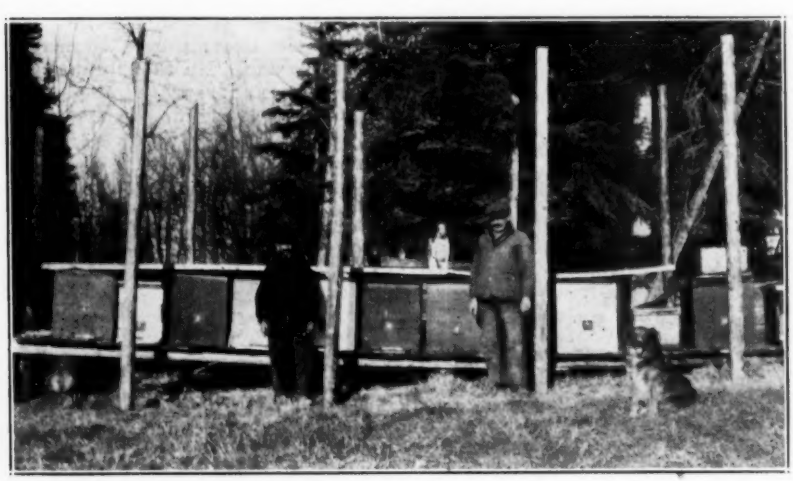
The trucks which took the mess to the locations chosen dipped with honey and left a trail of disaster which has cost the local bee men several years of drudgery and several thousands of dollars.

This bee man reaped where he had not sown; he got a harvest from Shasta county products, and if he paid any taxes anywhere it certainly was not here.

There is one of the prominent honey producers of the state who is reputed to have taken some two hundred hives equipped with supers filled with drawn combs and each one having a queen, a pound or so of bees, and a couple of frames of honey.

He unloaded just across from a flourishing apiary, opened his entrances wide, slashed a comb of honey in each hive, not being at all careful to avoid spilling, and waited.

A Swiss Beekeeper in Canada



Apiary of Mr. Joseph Carrel, a Swiss beekeeper established near Fribourg, Alberta, Canada, about the fifty-third degree. Mr. Carrel is a wheat grower. His daughter, who took the picture, is postmistress. He lives about a mile from his children. He harvests considerable honey.

In a very short time his hives were well filled with robbers, when he hastily closed entrances, reloaded and drove a few miles further, to repeat the performance. It was only a matter of a very short time until he had his hives booming with the captured bees, when he drove on to the sage and got a fine yield of honey. Some of the hives had ten or more pounds of bees which this range hog had stolen, and the losers had no possible redress, not even a right to use a shotgun.

This, of course, is an exceptional case of Class A range hog, but there are plenty of lesser ones.

One producer of package bees recently dumped some four or five hundred colonies down, adjoining a yard where the owner is attempting to produce a honey crop. The result will be that instead of the one man securing the crop for which he has worked the whole year, all the bees will merely keep alive.

The big man will have his stock ready for the spring flow, when he will move them out to some other range, regardless of who may have been there first, and the smaller man is the loser, because there are at present no known means of controlling the range hog and his destructive greed.

The expenses of the apiary inspector are to be paid from the taxes returned by the bee industry, but the most flagrant range hogs are such rapid dodgers that the assessor fails to get more than a very small percentage of the actual number of hives.

Only constructive criticism is of value, and it seems impossible to find a solution of this problem, since he is, by nature of his being, immune to suggestion and indifferent to the rights of others.

Who can offer a remedy, outside the forbidden shotgun?

A Good Bulletin

"Seasonal Management of Commercial Apiaries" is the title of a new bulletin by Russell H. Kelty, recently issued by the horticultural section of Michigan College of Agriculture.

This is a good piece of work and is prepared along somewhat different lines from those usually followed in publications of this kind. It deals entirely with management and gives specific and authoritative instruction for caring for the bees through the year. There are sixty pages, well illustrated, and every important manipulation is considered.

Those interested in a publication of this kind will do well to write to Professor Kelty at East Lansing, Michigan, and ask for a copy.

Mr. and Mrs. J. M. Cutts, of Montgomery, Ala.

J. M. Cutts, one of the pioneer beekeepers of Alabama, started raising queens in 1919, and now has over one thousand colonies. He is well known among the southern breeders of queens and package bees. We do not wish to give him more than his share of notice, because there are many other excellent breeders in his part of Alabama, yet we cannot resist the temptation to publish this picture of Mr. and Mrs. Cutts in one of their apiaries.

J. M. Cutts has interesting history. Years ago he did not like the work of postoffice clerk and quit it to become a beekeeper. "I was reared in a country village, my father being a doctor—poor because he was a poor business man. I first became interested in bees from reading an article in one of my school books. Several years later I owned my first bees, and finally I bought forty colonies and some equipment, all for fifty dollars.

"I was then selling sewing machines for a living. From my first earnings that year I bought more bees and a horse for $300. During the first few years I sold from $200 to $400 worth of honey and kept on with my other work, eventually trying beekeeping by itself.

For two years I had poor crops and got discouraged. That was when I applied for a job in the Montgomery postoffice, where I stayed ten years, continuing to keep bees in my back yard. My wife and I took care of a hundred colonies.

"With these bees we had good luck, and also had two hundred colonies in the country, poorly cared for by hired help. Altogether, we managed to save $700 a year for the first seven years in the postoffice. Then one year I cleared about $1,000 in the bee business and quit my job, resolved to make a go of it. We moved to the country and sold our town home and then I devoted all my time to bees.

"The bee business is not overdone," adds Mr. Cutts. "There is plenty of room for good beekeepers. The per capita honey consumption in the United States is only a few pounds, and when people learn that honey is better than sugar for health and that the use of more honey will be of benefit, the honey market will be unlimited."

Pollen Robbers

In "Schweizerische Bienenzeitung (Switzerland, November) is a note on a robbing habit of bees which is not generally known. The writer, after describing how bees returning home with pollen alight to rest on the front wall of the bee house (beehouses containing numerous stocks are much used in Switzerland) or on the ground before the hives, goes on to relate that robber bees, flying to and fro much as when at play in front of the hives, attempt to relieve the pollen collectors of their loads. This, he states, generally results in the whole load falling from the pollen basket and being lost. Only a few bees appear to take to these evil courses. This perhaps accounts for the occasional bee one sees with only one load of pollen. A. D. B.

A Glance Through the South

By Jes Dalton

Louisiana Beekeeping Conditions

CONDITIONS in beekeeping this spring in Louisiana apply in a general way to the whole southern country. In places we have had a heavy honeyflow, while in other large sections bees have had a continual struggle to make a living all through the end of winter and spring.

Orders for packages have run the same way, some sections being overbooked and others with scarcely any orders at all. In my region at St. Francisville hardly enough honey has come in to allow bees to build up, and the same has been true at Baton Rouge.

A trip through central Louisiana showed only one point with a good honeyflow. At Hamburg, which at one time was the greatest shipping point in the South, honey was coming in freely and bees working in two to three supers. The express agent, Mr. D. A. Coincon, himself a shipper, reported to us that business had never recovered from the destructive flood of 1927, not over 25 per cent of the previous shipments going out since that time.

Most of the old shippers are stocked up again with bees as nice as those described by M. G. Dadant in an issue of the Journal just before the flood. The country still shows the frightful effect of the water. We looked into some fine yellow colonies in **F. M.** Morgan's yard setting on the wreckage of a raft, where he had tried to save them in 1927. Mr. Coincon was filling packages from hives with the water marks on them where they had floated in May of the flood year.

Pieces of wreckage still string the roads, and the writer vividly recalls the last meeting there in early July of 1927, when W. E. Anderson met with the beekeepers and, within sight and hearing of the raging waters, planned to help them back onto their feet. In many of these apiaries the old "state reconstruction hives" can still be identified. The writer, with Dr. Oertel, of the Southern Bee Culture Field Station, traversed this whole section from Baton Rouge to Bunkie, where William Voinche keeps several hundred colonies. We went through Moreauville, through Mansura, where Professor Moncla has some yards; Hessmer, where Messrs. Gaspard and Roy live, and to Marksville, where Father John P. Cooney, of the Peerless Apiaries, John St. Romain, and Uncle Bordelon, of the Pecan Grove Apiaries, have outfits.

All this section, with the exception of Hamburg, complained of a light honeyflow. The Mississippi River is only eight feet below the 1927 flood stage and has overflowed its banks, backed up into the swamps, in Avoyelles county alone inundating approximately 12,000 acres of farm lands and destroying crops. Along the high lands most of the bees are in flying distance of swamps, and I remember in 1927 we had a cool, backward spring too. I am wondering if this volume of water standing around the roots of plants and changing the natural conditions will adversely affect the nectar flow. I had one yard almost surrounded by a swamp full of tupelo and willows along the Mississippi "backwater section," but the crop from it was such a failure that I am hauling the bees to other yards.

Orders are the same way; one shipper will have more than he can handle and others, although advertising heavily, will hardly have any orders at all. Everywhere we went we found the package beekeepers were filling and shipping out promptly all the orders they had.

W. E. Anderson, inspector for Louisiana, reports not finding a single case of disease among the shippers or in the whole state in this spring's inspection of the yards of all the package beekeepers. Of course, this does not necessarily mean that the whole state is free of bee disease, for some will undoubtedly bob up in out-of-the-way yards, but not a case showed up in or near the yards of any of our shippers this year so far, and the territory is pretty well covered.

Mississippi Notes

Conditions in Mississippi have been very favorable. The bees built up well and are storing a good crop of honey. Orders for packages have been liberal. Mr. Clay Lyle reports not finding a single case of disease in the whole state in this spring's inspection, a condition similar to that in Louisiana.

In East Texas

Conditions in east Texas are about the same. Bees built up well, but, owing to bad weather conditions, no early surplus was harvested, all the honey being consumed in brood rearing, so that the colonies are in fine shape for the May flow. The package business has not been good, only a few orders, and there have also been only a few orders for queens.

A note from S. E. McGregor, Texas apiary inspector, says that, in spite of the lack of cash for the work and the size of the state, they are more than improving the bee disease situation. Every colony found is immediately burned, hives, supers, bees and all, and the apiary quarantined. This is just what Mr. Foster reports from Florida. The same is true of Mississippi and Louisiana.

Alabama Conditions

Weather and conditions are about like Louisiana. Bees started off fine, but have not harvested much of a crop. Some yards have done better than others, harvesting a little surplus. Some are almost to the point of feeding.

The package business has been fairly good, not so many early orders, but all that could be taken care of in the season, and late orders still coming in. Floods do not seem to have destroyed any amount of bees, but did damage roads and bridges, making spring work slow and expensive.

Notes from Florida

Due to poor weather conditions, the orange flow was practically a failure, so that in some cases the colonies had to be fed for the flow from saw palmetto, the prospects for which are good. Reports from west Florida indicate a good crop from ti-ti and tupelo.

The disease situation, according to Inspector Robert Foster, is well in hand, few diseased colonies being found on spring inspection and these promptly burned up and the apiaries quarantined. Practically every infection was traceable to honey shipped into the state or diseased bees or equipment brought into the state.

A New Jersey Idea

The Essex county, New Jersey, beekeepers have a strong organization and publish a little monthly bulletin, edited by Mr. John Conner. Once a year the association holds an educational meeting, to which the general public is especially invited.

An appeal is made to the public school teachers, agricultural teachers, nature study teachers, also to the leaders in boy and girl Scout work, to be present The subjects contained in the program include the "Romance of the Honeybee," "Working of the Hive," "The Industry of Beekeeping" and "Honey as a Food." Usually these are illustrated. Why should not this idea be copied in our southern states, where we are trying so hard to coordinate our meetings and draw the organizations nearer together?

Southern States Beekeeping Conference Notes

Every effort is being made to organize the state summer meetings into one good program, all cooperating and held in a way most favorable to everyone. Texas leads off

July 30 to 31 at College Station; Louisiana follows, Saturday, August 10, at Baton Rouge; Mississippi tentatively August 15.

There is now a question as to whether it will not be best temporarily to work in two groups. Georgia has its meeting permanently set for the last week in September. If an eastern group can work around this Georgia meeting, composed of Georgia, Florida and South Carolina, this would form a temporary program which could be permanently adopted at the next general conference meeting. We will have more information in our next issue about the meetings which have been lined up.

Southern Bee Culture Field Station

There is not as much to report as there might be because things are so new at the station. Also there has been almost a failure of the spring honeyflow. Our naturally limited budget makes it necessary to restrict the work.

The regular apiary which the station fell heir to on assuming its duties at the college was moved out to a typical swamp location—tupelo, willow, a half a dozen vines, etc.—but to date most of these have proved only stimulative, and most of the stimulation was of the imagination. This seems to be typical of the whole region. There was only one or two days when the scale colony made a decent showing. Weak colonies had to be fed.

Dr. Oertel has been over a good deal of the state checking up on the honey plants, their blooming dates, and so on, but only in one place (Hamburg, Louisiana) was there an actually good honeyflow. It was claimed to be from white clover, but examination showed the bees working heavily on three plants—thistle, rattan vines by the acre, and white clover.

It seems to be a difficult job to find out which of these plants were yielding and which were not yielding. Work is progressing very nicely with the standardization of cages. Many questionaires have been sent out, which are coming back intelligently filled in, and it is hoped that the work will be kept up so that at least the necessary data may be at hand on which to base recommendations.

Drs. Whitcomb and Oertel looked quite natural smiling out of the May issue. Dr. Whitcomb has become acclimated very quickly. Please do not blame that to a weakness on the part of northern beekeepers, but rather to the charm and spell of our southern climate. It has a way with it that is irresistable.

If we could get all you fellows with whom we disagree down here for a short time, you would acclimate just as readily. Let me suggest as a general remedy for disagreement that the leaders in the North be sent down to live a while, especially in the winter, and imbibe some of the sunshine and fragrance of the flowers. They will shortly become just as acclimated as the Doc has.

Is Our Winter Loss as Great as Our Summer Loss?

By L. R. Stewart

I wonder if our winter loss, that great annual worry, is as great as our summer loss? What would your loss be in summer if bees received no more care than in winter? How many colonies "blow up," so to speak, for one reason or the other, never registered? Did you ever have a seemingly good colony that refused to work for no apparent reason? A drone colony, I call it.

Some of us carry these colonies along through the summer, coddle them, just to satisfy a false pride in numbers. It would be much better to unite them; probably everything under 50,000 could be doubled up at the beginning of the honeyflow. A layman will tell you that 80,000 bees will store double the amount of 40,000, but you know that that is not true; they will store three, four, five, or maybe more times as much in a good year and many times as much in a poor one.

It's the inverse ratio, due to the peculiar organization of colony strength. I don't know the exact figure. I have been too much concerned in honey production in eighty colonies as a sideline to work it out, but it can be done, and should, and you might be surprised. I know a fellow who reduces four hundred colonies about half and gets a surplus when his neighbors feed their bees all winter.

This has been a hard winter for us fellows who winter outside without packing. For the most part, our stores were from fall flowers, and usually they are excellent, but they did not seem as good this year, probably due to the long confinement, one period of six weeks. Still our loss will be light. Indiana.

Miller Inspector for Weber County, Utah

Oliver S. Miller, of Burch Creek, has been appointed bee inspector by the Weber county commissioners, to serve under $1,000 bond.

His salary as bee man is $250 per year. He replaces Marion Knight, of Plain City, who held the position last year.

Los Angeles Honey Buyers Ask Cooperation to Avoid Overheating Export Honey

Hamilton, Wallace & Bryant, shippers of California honey abroad, have made an appeal to all on their mailing list to cooperate in preventing discrimination against American honey in Germany because of overheating. This is in line with the attempt of our own Government to stimulate interest in the proper conditioning of export honey.

Their letter encloses a copy of the Honey News Letter No. 251 from the Washington office, which calls attention to the German law classifying honey in which the diastase has been destroyed or impaired as adulterated honey. The overheating of American honey, resulting in the destruction of the diastase, has turned back many shipments at German ports because the German inspectors refuse it unless it be sold to the baking trade at a loss.

Hamilton, Wallace & Bryant call for the cooperation of beekeepers in putting out their product so it will be acceptable. The foreign trade requires, when new honey is extracted, that it shall not be heated. Some beekeepers run their honey over or through hot water heaters. This may be all right for domestic consumption, but it is better not to heat it at all if it can be avoided. Honey from the capping melters is generally overheated and should be kept separate, not allowed to go in with the main supply of honey.

A few beekeepers still extract green honey and then try to cure it by heating. This is another way in which they overheat their honey and spoil it for export trade. Leaving metal storage tanks with metal covers outdoors in the strong sunlight where the temperature in places is often as high as 120 degrees will have the same effect on the honey contained in the tanks. Place the tanks under shade of some kind and keep the cans, which have been filled, in the shade. The point to remember is not to apply heat to your honey unless it is absolutely necessary, and, in any event, do not overheat it. Honey which goes into interstate trade or which is intended for export must not be heated.

One customer has stated that unless the condition is corrected, the business with Germany will be lost. At present exporters are afraid to ship honey to Germany, as they have no assurance that it will pass the German laws. Beekeepers should pass this information on to their friends, and everyone should work to put out a product that will be entirely satisfactory.

Crisco Criticised for Honey Advertising

You may have noticed the Crisco full-page advertisement of recipes in national publications recently, one of the recipes being for honey bran muffins. We believe this to be one of the results of the contact of the American Honey Institute with the food industry, and we are very proud of the fact that our Institute is reaching out in this way.

One of our subscribers, however, is critical of what he calls the "wonderful advertising stunt" by the Crisco people. He says the fact cannot be denied that "Crisco, oleomargarine, corn sugar, and so on are all in the same class."

I think our correspondent is entirely mistaken. The difference between Crisco and corn sugar, on the basis given in our correspondent's letter, is that Crisco is offered for sale as a vegetable fat and when the housewife buys it she knows it is vegetable fat. It is a thoroughly wholesome product also.

However, on the other hand, if she were to buy a can of peaches under the provision which the corn sugar interests wish to have made, she may have purchased what she supposed to be peaches canned in cane sugar syrup, but in reality she will have obtained peaches canned with corn syrup. The corn sugar people are, therefore, interested in being able to sell corn sugar not as such, but in places where the consumer has been educated to expect cane sugar. They expects to do this without labeling the food product to distinguish the difference.

Oleomargarine, Crisco, and other shortening products, are sold at face value and the purchaser does not need to purchase them unless he wants them. Corn sugar, on the other hand, is intended to be hidden in places where the purchaser would expect to be getting cane sugar and would not know the difference.

In respect to the Crisco advertising, if we can get food industries to use honey or advertise honey in any way in a thoroughly honest manner, I believe this a step in the right direction Incidentally we use Crisco in our house and like it very much.

G. H. Cale.

The Finer Points of Grafting

Some of your younger readers may not realize that, in grafting, one can either lift the little larva out with all its jelly or without any jelly. Since dry grafting is more generally used than grafting onto a bed of jelly, it is important to pick up all the jelly that the larva has already been fed by the bees.

I used to follow instructions and put jelly in the cell, but when the grafts were examined a short while after being grafted, I found the jelly was all cleaned out. For years now I have dry grafted, and, provided the cells are reared in a queenright colony that wants to rear them, the larvæ will be fed almost as soon as they are put in.

In order to get all the jelly that the baby larva has, a soft, "bendy" grafting tool is needed, a feather being about right if trimmed down carefully at the quill end. If a feather is not available, a good tool can be made from the wooden stem of a safety match that has been split down and softened in water or in the mouth. I always chew the end until it is soft.

By using such a tool and always picking the larva up from the outside of its curve (its convex surface), it will scoop up the jelly between the points and hold it till put in the new cell.

Then it should be placed in the cell by just letting the points touch the bottom and withdrawing the tool from behind. In this way the curve of the larva scrapes the jelly off the grafting tool.

One should use a fairly narrow tool and as soon as it is well under the larva a light lift and at the same time a forward movement will pick up larva and jelly. If this movement is carried too far without enough lift, one can put the grafting tool right under the larva and still leave it in its cell. By carrying the movement a little too far, the larva will be put on the tool with only its back showing. It is not then in a good position for transferring with its jelly to the queen cup.

John H. Rosser,
Benova, Southport, Queensland, Australia.

Sams Speaks Well of Honey Earnings in North Carolina

C. L. Sams, widely known beekeeping specialist of Raleigh, N. C., is authority for the statement that some North Carolina farmers who have gone into the beekeeping business are making a return of from $6,000 to $10,000 a year from their apiaries.

"The behavior of bees and the response which they make to changes in environment," Mr. Sams declared, "is the basis for success in the business. In all my demonstrations and extension work I use the behavior of the insects as a basis for practices followed. The results have been a general advancement in the efficiency of beekeeping, both in the homes and commercial apiaries."

Many of those who kept bees in box-hives and round gums at the beginning of this phase of extension work now have commercial apiaries in modern hives and use modern equipment, according to Mr. Sams.

The season of 1928, it was stated, was particularly favorable to beekeeping. There was a good increase in the honey produced, Mr. Sams pointed out, though not so many persons joined the ranks of the beekeepers as in previous years. He explained that the increased planting of sweet clover throughout the Piedmont Carolinas was a favorable development. Some of those having their apiaries near clover fields reported more than one hundred pounds of honey per colony from the plant, it was stated.

Last year, Mr. Sams said, he worked with the county agents of forty-seven North Carolina counties in conducting beekeeping projects. He held 192 meetings and demonstrations, where 2,757 beekeepers were present. At all these meetings he found great interest in the production of marketable honey, and said that better methods are being used in apiaries generally over the state.

Fixing Frames to Avoid Propolizing

We often read complaints of the way our bees propolize frames together, rendering their separation nearly impossible in cool weather. Allow me to suggest an extra operation on brood frames, a few of which I prepared in the following way a few years ago and, finding it very good, have a large part of them now fixed in this way. If you have no metal-spaced frames and your frames have all been tacked together with the V edges in their proper position, this will give you great pleasure and ease in loosening frames in hive:

Cut two notches (use very sharp pocket-knife) one-fourth inch deep and very narrow into the V edge of the end bar, one notch three-fourths inch from top or upper end of the bar, the other notch two inches below upper end of same. Now very carefully (observing cross grain in bar, if any) cut out this wood between the two notches.

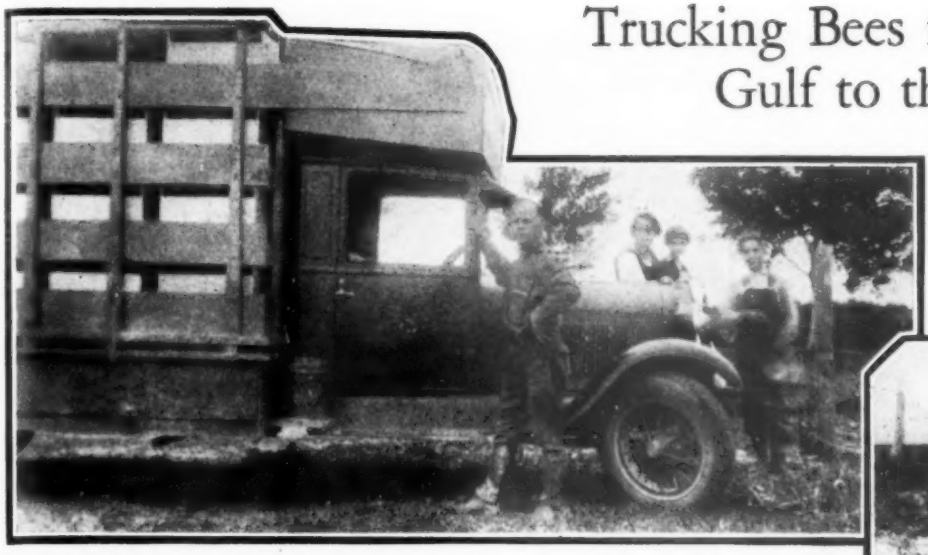
This now really will fit in with the metal-spaced frame, also the location of this clearance will take care of any changes in end bar for, at most, eighteen years. This little trick will also afford more bee space, which comes very convenient when crowding frames together with bees crawling all over the spacers. I have had a wooden frame made at the sawmill that will hold twenty of these end bars, and with this the whole twenty can be done at one operation with band saw.

One point to observe carefully is to leave the bases of these lugs much longer than top to avoid their breaking off. F. W. Luebeck, Indiana.

Trucking Bees from the Gulf to the Yellowstone

A. D. Hardy Finds Cost no Greater than Express and Bees in Better Condition

By John Hendricks



Mr. Hardy and his family beside the truck he used moving bees from the Gulf to the Yellowstone.

The youngsters had a good time going south

A. D. HARDY, of Powell, Wyoming, probably holds the record for hauling bees the longest distance in one continuous trip from one bee yard to another. Producing bees in southern Texas and hauling them to northwestern Wyoming by truck is the method he has adopted to provide bees to use in building up his colonies quickly in the early summer for the honeyflow, which begins at Powell about the first of July.

For a number of years Mr. Hardy has owned and operated a number of bee yards near Mathis, Texas. The package bees produced in these yards were shipped to Powell by express. It was found over a period of years that this was very expensive in actual express charges, but chiefly in the number of bees that arrived dead. Mr. Hardy found that if he accompanied the express shipments in person, and watched to see that the cages of bees were kept stacked near the door of the express car in such a way as to secure proper ventilation, the bees came through with only a small loss. But if the packages were stacked in an end of the car without ventilation the loss was large. He believed that the high express rate on bees, that of one and a half times first class, entitled the shipper to proper care of bees en route. Express messengers, however, insisted that they did not have time to look after bees, and that they needed the space near the doors for short distance expressage.

To make the trip from Powell to Texas and back for the purpose of accompanying each shipment of bees was expensive. It was to find a method of delivering bees to his Wyoming yards in first-class condition at the lowest possible cost that Mr. Hardy planned to haul by truck. Perhaps the chief factor in deciding him to haul by truck was the fact that even after paying one and a half times the first class rate he could not always collect equitable damages from the express company for loss en route.

The experience of the first year has proved that the expense of truck shipments and unaccompanied express shipments is just about the same, but that the truck proved far cheaper in the end because of the excellent condition in which the bees arrived at destination. However, Mr. Hardy anticipates that he can make trips hereafter at less expense than on the initial experimental trip.

The distance from Mathis, Texas, to Powell, Wyoming, is slightly over 1800 miles—1824, to give the exact speedometer reading. For hauling bees such a distance, special arrangements had to be made. The truck used is a new model AA Ford truck with the regular Ford dual gear equipment. The wheelbase was lengthened 43½ inches, so that it is 175½ inches in length. On this a special body 7½x13½ feet was built behind the cab. This body was planned to hold seven rows of shipping cages with ten cages in each row, making seventy to each tier. Special racks fit on each tier to support the next tier above and hold each cage firmly in place. The truck was packed with three of these tiers, or 210 cages. The fourth tier was arranged to omit every other cage in order to facilitate ventilation. The entire load consisted of 250 cages. The tiers were set in with an alleyway running from front to back through the center of the truck, with a space of about four inches between rows and about six inches between tiers. This gave each cage ventilation on top and at each end.

The upper part of the framework was extended out over the cab of the truck to make a platform about which was built a box. The front of this was hinged so that, when open, it gave room enough for an ordinary size bed mattress. Canvas cut to fit was arranged in tent shape so that the tent could be raised by merely lifting a metal tent pole and sticking it into its socket. There was room for the necessary bedding and also for clothing and other supplies needed for the trip. An electric light plugged into the light system of the truck gave light in the little room. During the day the bedding was folded on the mattress, the tent dropped, the front hinged board hooked up, and the whole covered with a waterproof cover that fastened with snaps to the edge of the framework.

Thus at night a comfortable bedroom was provided, which made it possible to camp wherever the truck happened to be when the driver decided to stop for the night. Another advantage of this arrangement above the cab was that the occupants of the room were right with the load at night and had the advantage of a position that gave them an outlook over the vincinity if anyone came to molest the load at night.

The bees are shipped in specially planned, screened shipping cages. The cages are in reality miniature five-frame hives, in which three frames are carried. The bottom and sides are solid. The ends have two-inch holes with ventilator screens. When prepared for shipment, the cages have one frame of honey and

brood, on either side of which is an empty comb or a frame with foundation. The center comb of brood and honey is the one from the nuclei boxes in the outyards and contains the mated queen and about half a pound of bees. To this is then added sufficient bees to make up the desired package, usually three pounds in addition to the half pound with the queen. The bees are weighed to make sure the proper amount is secured. They are put in cages at the outyards and brought to the yard where the queens are already awaiting in the shipping boxes. The cage containing the bees is set on top of the shipping box, and the bees are allowed to pass down, of their own accord. A cleat with notches holds the frames in place. Upon this the screen cover is placed and secured. To prepare an entire load for shipment takes some days. Some of the cages were prepared almost a week before they were loaded on the truck, and were treated as ordinary hives after being filled and until they were closed for shipment.

That the bees came through the trip in fine condition is evident from the fact that when the load arrived at Powell, and the bees were examined, brood was still hatching after being caged for fourteen days. The trip took thirteen days, three days longer than anticipated, due to tire trouble resulting from the excessive heat encountered on a great deal of the way. In comparison, it might be mentioned that when Mr. Hardy started from Texas with his load he shipped twenty combless packages by express. When these arrived at Powell five packages were entirely dead and the remainder were all in bad condition.

The plan of stacking the bees on the truck has proved very satisfactory. The arrangement gave sufficient ventilation to each hive throughout the journey. No water cans were put in the cages, but the bees were watered frequently. By using an ordinary water hose when stops were made at gasoline filling stations along the way, Mr. Hardy in a short time could water the entire 250 packages by spraying the water through the alleyways in the load. This also helped keep the load cool.

As stated above, the truck used for the trip is a new model AA Ford with extended wheelbase. The truck itself, with the special body and equipment, weighed 4700 pounds. The load weighed 5500, making a total of more than five tons. There were 250 packages of bees, each containing approximately three and one-half pounds of bees and a queen on three frames. The packages weighed from fifteen to seventeen pounds each when loaded.

On the trip, Mr. Hardy was accompanied by Mrs. Hardy and their eight-year-old daughter, Bonnie Belle. The truck attracted great attention all along the route. Mr. Hardy says that, wherever they stopped, a crowd gathered almost at once to inspect the load and wonder as to its contents. In Texas the load was usually guessed to be tomatoes or fruit, but farther north the guesses included poultry, dogs, and rabbits.

The trip from Mathis to Powell is a long one. Mathis is in San Patricio county, about forty miles from Corpus Christi. The route taken went through San Antonio, Austin, Waco, and Fort Worth, then through the Panhandle, through the northeast corner of New Mexico, over Ratun Pass and into Colorado. From Trinidad the route went to Denver and thence to Cheyenne. From here it traversed the entire state of Wyoming from southeast to northwest, as Powell is within seventy-five miles of Yellowstone Park. The trip thus practically covered the distance from the Gulf of Mexico to Yellowstone Park.

The trip was full of experiences more interesting when they were over than when they were happening. The chief grief came from tire trouble due to hot pavements. Three new rear tires blew up on the trip, all of them on paved roads. At one time, in Texas, the rim of a rear wheel was injured. As the new model AA was then just out, Mr. Hardy experienced trouble in finding a dealer with repairs. Fortunately, he was only half a day by trolley from the Ford assembling plant at Dallas. Taking his injured rim under his arm, Mr. Hardy made the trip to Dallas. At the Ford plant he received pleasant treatment, and a new rim in exchange for his bad one. But he lost a day's time, and in the meantime the bees were standing out in the hot Texas sun.

At Vernon, in northern Texas, just before entering the Panhandle, it was necessary to ford the Pease River where a new bridge was being built. The water was neither wide nor deep, but there was about an eighth of a mile of sand to traverse, where if one got only a tiny ways out of the beaten track he would find himself in quicksand. At another place it was necessary to travel for some distance through sand, where he had a slow, difficult time to negotiate the distance. Thus more time was lost.

From northern Texas and over the Ratun Pass into Colorado the truck did valiant work. On a road so steep there was a rise of eleven feet every hundred feet, the load moved along without any trouble whatever, though of course it was not possible to make very fast time.

The experience of the first year of hauling by truck has shown that it is a successful method of transporting bees long distances. The cost of making the trip is about equal to that of shipping the bees the same distance by express, but the condition in which the bees arrive at destination is so excellent as to give the truck method all the advantages.

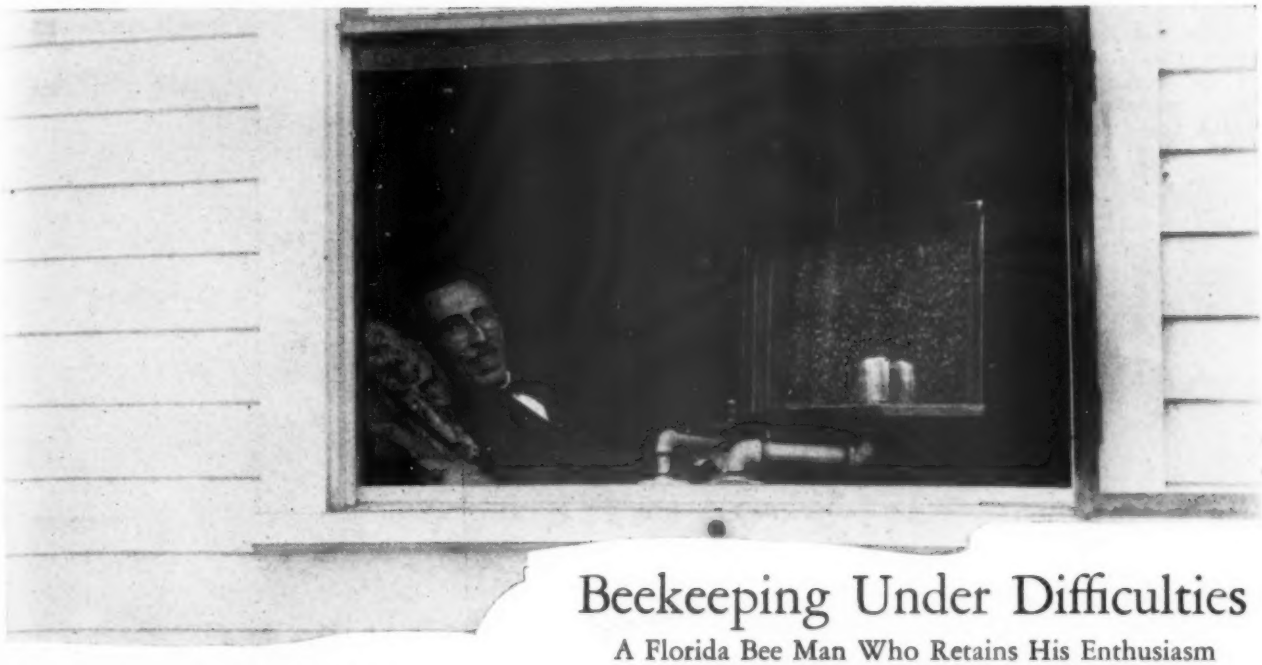
The experience of the first year has led Mr. Hardy to various conclusions in regard to future trips. One is that he expects to make the trip earlier, so as to get the bees to Powell by about June 1. He already has the truck equipped. The chief delay last year was on getting delivery on the truck, the first model AA to be delivered in Powell. Another is to speed up the work of making up the load. The faster this can be done the better the condition of the bees and queens when the start is made. From three to four days is best. He is planning to make canvas curtains to use as screens on each side of the truck, so it will be possible to shade the load when driving through excessive sunshine. The curtains will be so arranged that they will stand out some distance from the side of the truck and not interfere with ventilation.

The chief improvement he is making in his truck is the addition of dual hind wheels to take the place of the ordinary rear wheels of the AA Ford. He thinks his tire trouble was due to the excessive load as well as to the heat on the paved roads. It was necessary either to decrease the load or to plan for increased tire strength. By using the dual wheels it will be possible to haul as large a load as last season, or 250 packages, each containing a queen, three and a half pounds of bees, and three frames. By doing away with the loss of time from excessive tire trouble, the trip can be made in ten days, which will insure even better condition of the bees on arrival, as well as greater economy in the cost of transportation.

(This is fine. Mr. Hardy is certainly an active and resourceful man, well worthy of his name.—Editor.)

Nuernberger Braune Lebkuchen, for Bakers

Take ten pounds of dough and add to it five ounces of finely chopped citron, five ounces of orange peel, one-half pound of cinnamon, one-fourth pound of cloves, one-fourth pound of mace and one pound of fine ground almonds. Bake in sheets with almond halves on top and cut when cool. Put up in packages.



Beekeeping Under Difficulties

A Florida Bee Man Who Retains His Enthusiasm in Spite of Illness Which Confines Him to Couch and Wheel Chair

By Frank C. Pellett

MY story really begins back in 1891. The station agent in a little Georgia town was enquiring about the usual line of promotion with the railroad company for which he worked. The salary paid to station agents in small towns at that time was about forty dollars per month and promotion was a slow process The investigation revealed that to reach the heights of $125.00 per month in the train dispatcher's office would likely require considerable time, even providing that the excellence of his work was promptly noticed by his superiors who made the selections of men to fill vacancies.

This particular agent, Arthur F. Brown by name, gave the best hours of every day to the service of the railroad company. His spare time he gave to his bees. In that year of 1891 the company paid him $40.00 per month, a total of $480.00. The bees paid him $960.00 for his spare time, exactly double what the more exacting employer did. After the conversation with his superior officer, who held out hopes that he might ultimately reach $125.00 per month in the railroad service, he decided to resign at once, and resign he did.

From that time he has looked to his bees for his livelihood, and, although fate has dealt him severe blows, although he has been called upon to endure such pain as few men suffer, although he has been confined to his bed for months at a time and has become permanently crippled, he still loves his bees and looks to them for his principal interest in life.

Thirty-eight years have passed since Brown left the service of the railroad company, and in that time he has met all the vicissitudes that fall to the lot of beekeepers generally and some besides. He has seen good years and poor years, years of prosperity and years of adversity. There have been seasons when life brought everything that heart could wish, of health, happiness and prosperity, and there have been other years when it seemed that there could be nothing left of adversity, save death, itself, and even this was preferable to the suffering which he was called upon to endure.

It is a long time since I first began hearing something of the story of Arthur F. Brown, the man who remains cheerful and optimistic, although confined to his chair and his couch. I have been told of his observation hive, so constructed that he can see everything that goes on within, while he lies stretched beside the window. I had heard that his interest in bees continued and that he had so much to tell that beekeepers from far and near stop to chat with him, to see his hive and perhaps learn some new and interesting thing concerning the insects they love so well. So when opportunity offered, I too stopped at Daytona, Florida, to visit this enthusiastic bee man.

Eleven years of suffering has left its marks upon his body, but apparently not upon his soul. He refuses to admit defeat and finds ways to occupy his time with profit and interest, even when his body is wracked with pain.

An Ingenious Hive

Never have I seen an observation hive which so completely meets every need of the observer as his. The picture plainly shows the entrance in the window sill. The bees enter through a hollow pipe which sets in swivels. This permits moving the hive into any desired position, turning first one side and then the other toward the observer, or pushing it back out of the way against the window. There is a feeder made by turning a small glass jar upside down, over an opening in an extension of the bottom board. The side walls are made of double glass so that the bees feel little change in the temperature of the room, and there are no covers to exclude the light. Apparently the bees find conditions entirely to their satisfaction, for they continue their normal activities, even to casting a swarm occasionally.

Years of uninterrupted observation have revealed many things concerning the activities of the colony, some of which probably have not been seen by others. On two different occasions Brown observed the queen, herself, busy in constructing a queen-cell to her liking. Each time the queen worked for ten or fifteen minutes in drawing out the cell. Both times eggs were laid directly in the cell after the work was completed. Afterward both queens continued to visit the cells frequently, even after the larvæ had emerged, to see that all was well. At other times he has watched the virgins emerge and has seen their frantic efforts to destroy possible rivals within the royal chambers. He has seen them cut into the side of the remaining queen-cell and

sting the helpless occupant. He has watched the swarms go out and has spent uncounted hours in company of the workers as they carried on their usual daily labors. His notebooks are full of interest and he could tell us many things which most of us have overlooked.

Mr. Brown and Mr. Ellenwood with one of the Brown hives.

In the back yard is a small apiary which our friend is able to care for in spite of his physical handicap. Although he is unable to walk, he moves about in a wheel chair, and the hives have been constructed to meet his special needs.

The late O. O. Poppleton made the long idea hive famous. Poppleton practiced migratory beekeeping along the rivers of eastern Florida. He used a long hive with no supers, and Brown has worked out a somewhat similar system. Since he cannot walk, it is out of the question to handle supers in the usual manner. With a long hive on legs, as shown in the picture, he has everything at the right height for his convenience. The covers are hinged and can be turned back when he wishes to examine the bees. He has a special screen built on a frame two and a half feet high, which rests on the cover cleat of the hive to defeat the robbers. This screen, covering both ends and the side of the hive opposite the worker, removes all bother of robbers, as they simply do not seem to learn how to get over it before he has finished with the colony and closed the hive.

Brown insists that the long hive is the only one which can be manipulated successfully every day in the year. By his system one can continue his work with the bees under conditions when it would be impossible to tear down the ordinary hive and manipulate the brood nest, because of robbers.

For many years, Brown operated from 300 to 500 colonies of bees. In his present state it is of course impossible for him to care for any except the few long hives which he has at home. His outyard is looked after by a kindly disposed neighbor, S. C. Ellenwood, who, in addition to his own apiaries, also cares for Brown's. Ellenwood was for some years engaged in the dairy business at Daytona, which is Brown's present home. Finding the bees more to his liking, Ellenwood gave up the dairy business to devote his attention to honey production.

Brown has continued to carry on, to the best of his ability, since rheumatism has confined him to his room. During the years of illness, he has hired seventy truckloads of bees moved from one pasture to another. Under the conditions which prevail over most of Florida, it is often necessary to move the bees to insure a crop. Migratory beekeeping makes possible getting honey in one locality when the crop fails in another.

Florida has several plants which yield freely when conditions are favorable. Brown has secured an average of more than 200 pounds per colony from mangrove some seasons, while in others this tree yields but little and it may even be necessary to feed the bees.

Brown has interesting stories to tell to prove that the bees are worthy of confidence and that they will not fail to repay one who looks to them. In 1911 he had occasion to make a business trip to Europe. The man in whose charge he left them died suddenly the day following his departure, and they received no attention during the two months of his absence. On his return, he found eighteen tons of honey on the hives in spite of the neglect.

For information concerning beekeeping conditions in eastern Florida, I know of no better place to go than to our interesting friend at Daytona. His long experience in that region has provided him with a rich fund of information about bees and plants, and even bears. Speaking of bears reminds me that seventy-two were killed within three miles of his apiaries from 1896 to 1913, in what is now Flagler county. Bears make no end of trouble for the beekeepers in the wild country, tearing the hives to pieces to devour the brood and honey.

A visit to Brown is a real inspiration. Here is a man who refuses to give up under conditions which would seem hopeless to most of us. He makes the most of what is left to him and greets you with a smile. He offers no word of complaint because of his adversities, but he has so much of interest to tell that you go away with a feeling of having been delightfully entertained.

Lives of Famous Beekeepers

RENE ANTOINE FERCHAULT DE REAUMUR

By Kent L. Pellett

Reaumur . . . represented French science in all its refulgence during the first half of the eighteenth century.—Maury.

IN 1683, three years after the death of Swammerdam, the French Reaumur was born at La Rochelle. He, too, was destined to devote himself ardently to the study of insects. As Swammerdam, he had a keen intellect, which attracted to him the greatest men of Europe; his observations were careful and exact, his perception acute, and his recordings have been largely confirmed by later scientists.

Yet by nature the two men differed as oil and water. Swammerdam, the melancholy and reclusive Dutchman, narrow in his interests, found in his work an obsession that verged on mania, and he wrecked himself with intemperate application before he was forty. Reaumur, genial, expansive spirit, lover of good company, found, during a normal life of almost twice the length of that of Swammerdam, time to do an astounding variety of things.

Prominence attached to Reaumur early. At twenty-four, after the publication of some important papers on geometry, he was elected to the Academy of Sciences, and for nearly fifty years he was one of its more useful members. His papers and reports were frequent and of great interest. He made a study of the process of reproduction of cast limbs of crayfishes and lobsters; investigated vast fossil beds; attempted to learn the nature of light given off by certain mollusks; made himself acquainted with the odd substance that gives lustre to the scales of fishes; described the difference between the digestive organs of the birds of prey and those of grain-eating birds. That is but a sample of his work as a naturalist.

In 1734, when in his fifties, he began his Memoires pour servir a l'Histoire des Insectes (Memoirs of Service in the History of Insects). By 1842 he had published six large volumes and had begun the seventh, to treat of beetles. In a clear style he gave a careful picture of insects and insect habits, and with unusual perception he presented the wide variety of means nature uses to preserve and propagate them. It is still easy reading, even for a poor French student like myself, if one makes allowances for the use of a letter shaped like "f" where modern Frenchmen use "s," and for other slight variations.

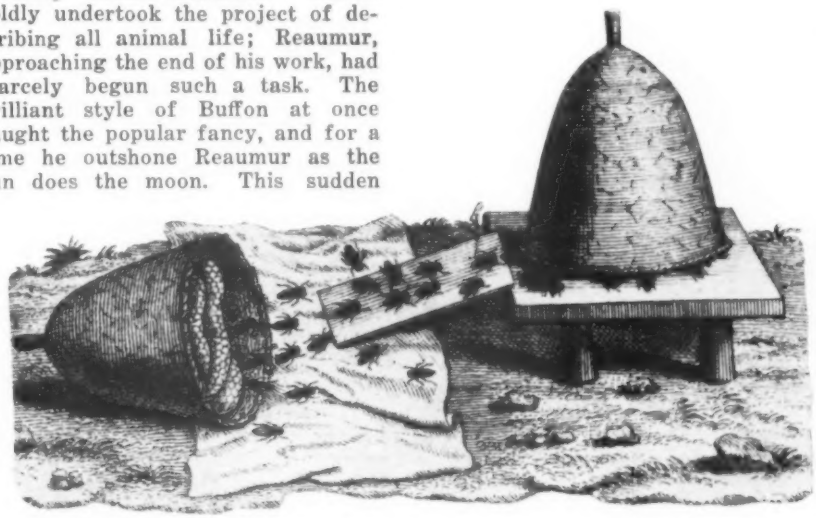
This work placed him at the front of naturalists. He was accorded that distinction by members of the Academy and was popularly regarded as preeminent in his field. The ambitious Reaumur found a certain satisfaction in the adulation he received and the power his eminence gave him among his associates.

Then Buffon, a younger naturalist of the period, began his History of Nature, and wrested popular supremacy from Reaumur. Buffon boldly undertook the project of describing all animal life; Reaumur, approaching the end of his work, had scarcely begun such a task. The brilliant style of Buffon at once caught the popular fancy, and for a time he outshone Reaumur as the sun does the moon. This sudden eclipse roiled the older man. He looked upon Buffon as an amateur. Indirectly, Reaumur made frequent attacks upon him. It was due probably to disappointment that Reaumur dropped his work on the Memoirs and turned his attention to other things the last fifteen years of his life. At the time of his death the manuscript for the seventh volume was still incomplete, and in disorder.

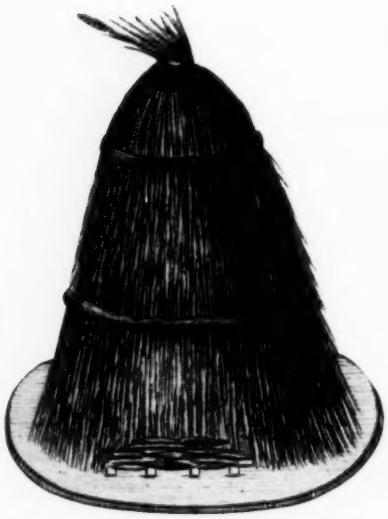
But, after the two men had laid aside their pens, and later scientists subjected their respective work to the measuring-stick of use and further discovered facts, Buffon rapidly lost ground, while the exactness of Reaumur's observations retained him among the greatest of entomologists. He had been a patient investigator; Buffon a theorist and philosopher, the chief value of his work due to the efforts of his collectors, which he recorded.

But if Reaumur had been permanently eclipsed as an entomologist, he need have had little fear of being forgotten. He was one of those versatile spirits who are ever the admiration and despair of the rest of mankind. He held his position at the Academy of Sciences not only because he was a great entomologist, but because he was an authority on most branches of knowledge. Questions of a wide variety disputed by its members were settled by the mere weight of his word.

Men who do great work in many



How did the old-timers accomplish such a stunt? It must be the shook swarm of later days. Much that we think is new was done years ago.



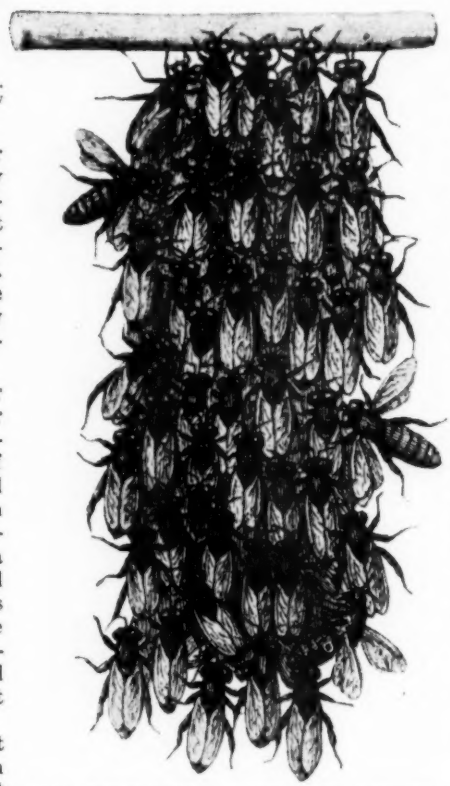
Three old prints from Reaumur's book. The old observers did much with straw hives that we would think impossible.

fields of science, art and endeavor are rare; but the eighteenth century produced several. In France, Voltaire, a social revolutionary, was at the same time a romancer, a dramatist, a historian, and a scientist. Benjamin Franklin in America gave impulse with his overflowing energy to all branches of industry and learning. And there was Reaumur.

He invented white porcelain for use on thermometers, and later adapted to refrigerators. He discovered, after many trials, the art of steel making, so that France need no longer import her steel from abroad. The French had bought tinplate of Germany. By inventing a cheap process, Reaumur induced them to make it at home. He was the first to attempt in France the artificial incubation of eggs, an age-old practice in Egypt. He invented a thermometer, perhaps his best known invention.

But the biologists have the largest claim on him. He left no work in any other field to compare in extent with his Memoirs, which, besides the careful observations they record, are an attempt at a classification of insects. Reaumur based his classification on peculiarities of behavior rather than on body structure, as have the later biologists. This led him to include among the insects worms, mollusks, and reptiles. He said, "The crocodile is certainly a fierce insect. . . " But his rival, Buffon, went wider afield in his attempt at system: "It is a mistake to let the description of the zebra, which is foreign and unfamiliar, follow that of so well-known and useful an animal as the horse; the dog, which we are accustomed to see running at the horse's heels, might more fitly come in this place. The natural and ordinary way of looking at things is the best" If Reaumur's classification seems woefully crude, if any high school student could do better, it is because the efforts of such men as Linnaeus and Mendel have led us to pay closer attention to animal and plant relationships. Reaumur had none of our guide-posts to help him.

In the greater part of a volume of his Memoirs devoted to bees, which entitles us to call him a beekeeper, his frequent quotations show that he was a close student of Swammerdam's work. He contested many of Swammerdam's conclusions, and anticipated facts that later Huber was to prove. Swammerdam, as well as earlier writers, had believed that the queen did not enter into bodily union with the drone, and advanced



The wax-secreting cluster after Reaumur.

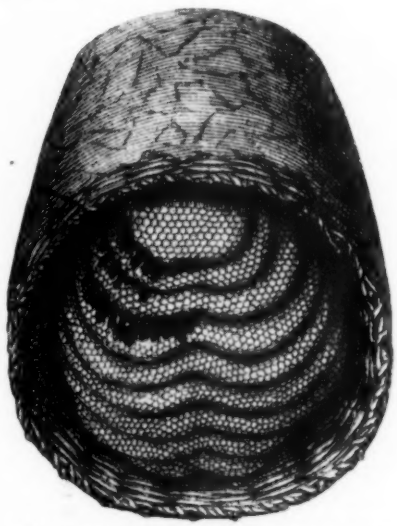
the theory that for her to be in the presence of a number of them was enough to render her fecund, as they emitted a fertilizing vapor. But Reaumur thought that bees mated as did other genera of insects, and concluded that copulation must take place under cover of darkness in the hive. He made careful dissections of bees to confirm the different sexes, and, finding evidence neither of testes nor ovaries in the workers, concluded that they were entirely without sex. Huber later was to correct him on these points.

It was natural, mathematician as he was, that he should become interested in the shape of the comb cells. He verified the calculations of Pappus, an old Egyptian mathematician, who also had studied honeycomb. Pappus had arrived at the conclusion that of all prisms of equal capacity which fit together without leaving gaps between, the six-sided prisms require the least material in construction. Reaumur noted the great firmness this shape gave the combs, and believed that no human architect could construct anything of so much solidity with so little material.

The Italian, Maraldi, had measured the angles of the rhombuses in the pyramidal bottoms of the comb cells, and had found them to be 109° 28′ and 70° 32′. This gave Reaumur an idea. He asked his friend, Koenig, a noted mathematician, the following question: "Of all the different six-sided cells with pyramidal bottoms composed of three rhombuses alike and equal, which could be constructed with the least material?"

After careful calculation, Koenig answered: "Those with rhombuses of angles 109° 26′ and 70° 34′. This missed the solution of the bees by just 2′. Reaumur marvelled that their economy came so close to perfection. But other scientists were troubled that the bees came so close to the correct angles and yet missed them. They took the trouble to solve the problem for themselves, with the same result as that of Koenig But the bees refused to correct their error, slight as it was, and continued to construct the cell bottoms with the old angles.

In later years there was a shipwreck. Investigation of the accident showed that the captain had steered off his course due to calculation from logarithm tables that were defective. The tables were corrected to prevent further error. Then it was discovered that these were the same tables from which Koenig had made his calculations. The cell bottom problem was again solved, with the corrected tables, and this time the same angles were obtained that the bees had always used.



Straw hives were ideal for bees; warm, shaped to the combs, and closely resembling natural conditions.

The facts that Reaumur uncovered only multiplied his questions. How had the bees arrived at the solution of the six-sided prism and the angles of the rhombuses? "If one does not wish to regard them as very intelligent beings, one is forced to recognize that they must be the work of an intelligence infinitely perfect and infinitely powerful. . . . But one asks why He (their Maker) has instructed them so admirably. Was it necessary that they conduct their work according to the rules of the most sublime geometry? One is tempted to think that the Wisdom par Excellence has given too much attention to simple flies. . . . " Again, "The sphere of intelligence which has been accorded us does not extend beyond the outer shell of a few particles of the universe. We have, however, to reproach ourselves for not giving enough of our attention to the small number of these particles which is not beyond our reach. . . . " In this last sentence he gave the answer to his own wonderings. If we cannot understand very much, let us at least attend to what we can understand. The answers to all our riddles are perhaps under our very noses.

Thus Reaumur passed his life, tranquil and content in all his varied activity, counting not only the greatest personages of Europe his friends, but also his own neighbors. His Memoirs gave a great impetus to the study of insects. He was to be the inspiration of Fabre and, earlier, of Charles Bonnet, who directed Francis Huber to consult his work on bees.

Diastase Activity Experimentation

By G. H. Vansell

ALL beekeepers are probably familiar with the fact that the German Government has recently placed an embargo on honeys that failed to show, upon examination, a certain diastase content. Diastase is the name applied to enzymes or ferments that have the ability to break down starch into sugars. Inasmuch as honey contains very little starch and the amount of diastase in even the most heavily diastase-charged honeys is negligible in comparison with a small drop of human saliva, it seems certain that the objection to honey poor in diastase cannot be based on the dietetic value of the diastase. Despite the fact that our investigations have shown some comb honeys practically devoid of diastase activity, German authorities consider any honey with a low or slow diastase content to be overheated or adulterated.

Since the controlling German opinion has decided to penalize any honey which, according to their tests, is low in diastase activity, it is necessary that we investigate sufficiently to be able to comply with their regulations.

One method being used at the University of California Agriculture Experiment Station to compare diastase activity is here outlined. One gram of honey is thinned with ½ cc. distilled water. Twelve cc. of grain alcohol (95%) are added to precipitate the proteins which are then centrifugalized from the alcohol and sugars. A like amount of alcohol is used to wash the precipitate, followed by centrifugalization and decantation. A considerable amount of precipitate is obtained in this way. It is dried with warm air. Nine cc. of distilled water are added to the dry powder. This water solution is acidulated with a few drops of N/50 acetic acid in amounts necessary to produce a delicate pink reaction (pH 4.4) with methyl orange. To this definitely acid mixture one cc. of one-tenth normal sodium chloride is added, after which the temperature is raised to 97° F. in an oven. The diastase activity is now measured by the power to change starch to sugars.

A definite amount of a known starch solution is added and the time required to digest it is the index of diastase activity. The amount used in this series of tests is six drops, the same droppers being used throughout to insure constancy. The enzymatic activity is measured by testing drops on a spot plate with a special iodine solution. The color changes steadily (when active diastase is present) as the starch is converted to sugar, from blue through purple, lavender, and pink to the normal yellow of the dilute iodine solution. The time required to reach the yellow by various samples is recorded in table No. 1.

The starch solution is made by dissolving three grams of (J. T. Baker, C. P.) soluble starch in 250 cc. of boiling freshly distilled water. A drop of chloroform and several drops of toluol are added after cooling to prevent growth of yeast and other organisms. The stock iodine solution consists of 1.5 grams potassium iodide and .5 gram iodine dissolved in 98 cc. freshly distilled water. For use, this is diluted one to nine in distilled water. The same dropper is used continuously in adding this solution to the test drops of the starch-diastase samples.

A honey series has been treated twenty-four hours by exposures to dry heat in an electric oven varying from room temperature to that of boiling water. This honey was produced in the University Farm apiary at Davis, California, during the time when star thistle, **Centaurea solstitialis L.**, was the most abundant source of nectar. Italian bees, somewhat mixed with German and Carniolan blood, predominated at this location. Extraction is done in the ordinary centrifugal machine after uncapping the cells with a steam knife. Only the honey from the extractor is used in the experimental work, so that no artificial or natural heat was applied except during the passage of the hot uncapping knife over the ends of the sealed honeycomb cells.

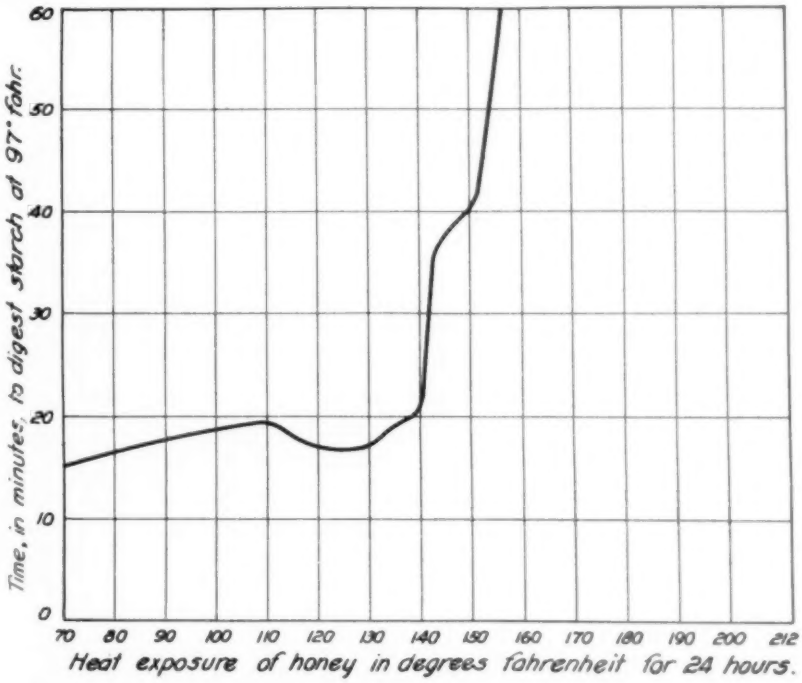


Chart 1. Showing activity of diastase in one kind of honey after exposure to heat.

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Untested queens, one	$ 1.35
Untested queens six	6.60
Untested queens, dozen	12.00
Tested queens, each	2.25

Ask for prices in larger quantity.

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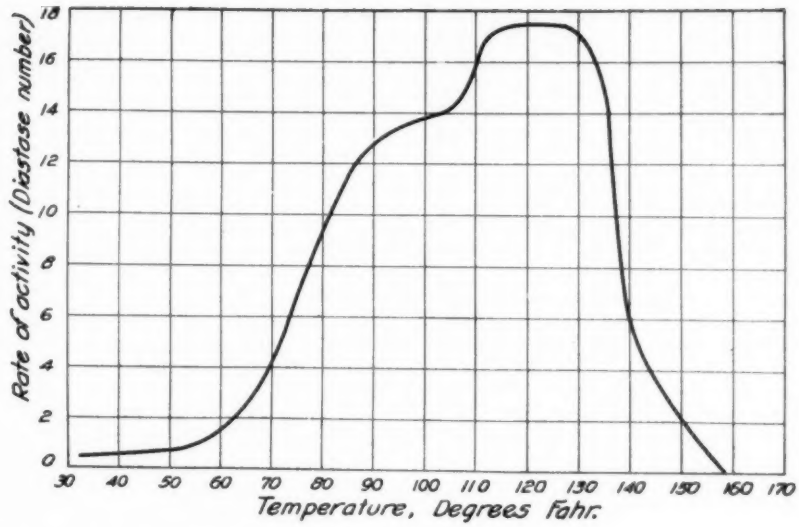

Chart 2. Showing increase, then decrease of diastase activity at increasing temperatures.

In pursuing this study with the same honey under known conditions it was possible to obtain data which can be used to form a simple graphic picture of diastase activity. By plotting the time necessary for the diastase to digest starch into sugar against the degree of heat exposure for the honey a graphic curve is made to show the decrease in activity with the increase in temperature. (See Chart I.)

The rate of diastase activity on starch increases rapidly from freezing temperature to about 100° F., where it remains practically constant until reaching 127° F. At increasingly high temperatures the rate of activity decreases rapidly to become negligible at 160° F. Chart No. II from Goethe shows activity of honey diastase in relation to temperatures.

The temperature of 97° F. was selected as the constant on account of its approximation to human body temperature. Test samples could be held tightly in the hand without materially lowering their temperature during sampling outside the oven.

Table No. 1

showing decline in diastase activity resulting from exposing honey samples to heat for 24-hour periods:

Exposure temperature	Average time required for starch digestion
70° F.	15 minutes
97	18 "
111	20 "
115	18 "
124	17 "
130	17 "
132.5	19 "
138	20 "
143	36 "
149	40 "
152	50 "
156	58 "
161	180 "
170	infinity (no activity)

Valuable Pollination Bulletin

The Michigan Experiment Station at East Lansing has recently issued a bulletin entitled "Pollination of Orchard Fruits in Michigan," by Roy E. Marshall, Stanley Johnston, H. D. Hootman and H. M. Wells.

The bulletin contains extended accounts of the Michigan experiments in the pollination of fruits by honeybees in line with the articles by Mr. Hootman in the American Bee Journal of February, 1928, and January, 1929. There is a discussion of planting to insure proper fertilization, with suggestions as to varieties which are inter-fertile. A similar discussion of pears, peaches and cherries follows. A considerable portion of the bulletin is devoted to the honeybee as a distributor of pollen in commercial orchards.

This is an especially valuable publication and should be in the hands of every commercial fruit grower in the region where similar conditions prevail. Those interested can probably secure copies by addressing the Michigan Experiment Station.

Wire Screen Over Frames in Winter

I see in your question columns, in the Journal, Missouri asked the question how wire screen would work. I have used wire screen on a frame made to give bee space over top of frames and filled super with burlap, and never did bees winter better.

Nebraska.

Good Honey Section

Torrington, Wyoming is usually in the limelight because it is a great sugar beet country, but now comes word that it must be reckoned with as the coming honey section. Fred Lutz, a large grower, has been able to dispense with his entire crop and did it locally. J. B. D.

Conditions in North Georgia

By W. P. Clayton

The year of 1928 was the hardest on bees in forty years. I am not that old, but I have talked with older men who say that it is so. Nineteen twenty-seven, I thought, was a poor one. The bees only made a living. Some, however, stored a little honey during the summer; then, in late September and October, we had an awful honeydew, from which the bees filled their hives and supers full of dark honey. Even though it was dark, I was indeed glad to see the bees store a large quantity of it.

This heavy flow of honeydew caused the queens to continue egg laying very late, thereby giving the hives a large force of young bees for winter. My bees went through the cold months just fine.

The spring of 1928 found my bees in fine shape. When the time came for the honeyflow from tulip poplar, my hives were boiling over with bees. I never had them in finer shape for the flow of nectar.

The season turned out very poor. The bees never got a good living from the poplar. It would rain two or three days, then turn cold, till the bees could not get out from the hive to gather the sweets.

There is usually a drouth of nectar between poplar and sourwood, but when the sourwood bloomed there was not half a crop. There was one week during the sourwood flow of nectar that the bees hardly left the hives on account of rain.

After the sourwood bloom was ended there was very little honey in the hives, and by September they needed feed. Upon examination of my bees, I found that some of the colonies had almost ceased brood rearing. This was the time when they should have been rearing brood heavily in order to have them in tip-top shape for the winter months. Most of the hives contained only a small winter cluster. Owing to the mild winter, my bees have stood it fairly well so far.

I am expecting most all the bees in the old box-hives to be dead by April. There are but few beekeepers in this part of the country but what still retain the old box-hive. I have talked with many of the box-hive beekeepers and most all say they are not going to feed their bees any. They say if the bees make it through the winter it will be all right, and if not, they can just go.

Somehow I can't believe this is right. When the little workers harvest a good crop of honey, the owner is always ready to get his share, and most of the time more than his share. Usually there is barely enough left to tide them over until the next flow.

In early spring the owner steps out

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BEAUTIFUL, GENTLE AND GOOD HONEY GATHERERS

Select (one grade) young laying queen $1.00 each; five for 80c each; ten, 75c each; twenty or more, 65c each.

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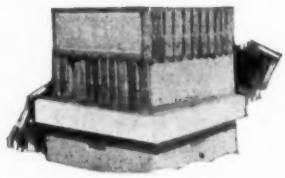

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5 lb. boxes Thin Surplus Fdn.	72c per lb.
5 10 fr. 1 story Metal Cover Hives	$13.60
5 10 fr. 1 story Wood Cover Hives	10.95
500 No. 1 4¼x1⅞ Sections	5.60
1 2 fr. No. 15 Rev. Honey Extractor	22.90

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into his bee yard and finds his hives without any bees and the combs almost destroyed by the waxmoths; then he says, "The weevils have et up my bees!"

A Court Rules Bees Worth .000315 of a Cent Each

This is the most touching of the titles concerning the case of Mr. J. W. Cunnea and Mr. Ezra Ross, of Morris, Illinois, who sued the Rock Island Railroad Company for $50,000 damages among 175 colonies of bees that died on a trip from Pike Road, Alabama, to Morris, Illinois. The jury brought in a verdict of $6,300 damages for the complainant, about one-eighth of the amount asked.

It is interesting to note the way an item of this sort catches in so many newspapers. We received from our readers about a dozen clippings in this one instance. Some of the titles are catchy: "Railroad Stung in Suit Over Bees," "Awarded $6,300 for the Death of 20,000,000 Bees," "Private Life of Bees Is Aired at Trial; Man Says Many Drowned in Box Car," and so on.

The clipping is a dispatch from the Associated Press, one of the largest distributors of news information in the country.

New Honey Bulletin

"Honey, How to Use It," is the title of a new bulletin by Alice M. Childs and Agnes Kolshorn, issued as special bulletin No. 122 of the University of Minnesota.

It is hoped that there will be a large demand for this bulletin, since it gives the kind of information which the public should know about the product of the hive. Those interested should address the College of Agriculture, Extension Division, St. Paul, Minnesota, and ask for copies of this bulletin.

There are several pages of recipes for the use of honey in various food products, such as cakes, cookies, candies, etc.

Habits of Bees

A 24-page bulletin on "Habits and Activities of Bees," by Francis Jager, has recently been published by the University of Minnesota. Those desiring copies should address the College of Agriculture, Extension Division, St. Paul, and ask for copies of Special Bulletin 73.

The bulletin is confined to a consideration of the life history and habits of the insects. It is only necessary to state that the work is done by Francis Jager to insure that it contains authoritative information.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

SWARMS FROM SMALL HIVES

1. You speak very enthusiastically of the work of Mr. Tissot's apiary and the way in which he has used the Dadant plan to get large quantities of honey. Will you kindly explain that plan to me and tell me whether that plan acts also as swarm control? I have always tried to make comb honey, and my bees have swarmed incessantly.

2. They are all in the cellar now in good shape and every one two stories high, in Langstroth hives, eight-frame. Can I do well with them this year running most of them for extracted honey with this equipment? It is quite an expense to transfer them to ten-frame hives. Give me your best judgment on the matter.

3. I have one swarm down cellar with a fertile worker and one with a young queen black as tar. Would you try and introduce an Italian queen into the latter, and what would you do with fertile worker?

IOWA.

Answer.—1. The Dadant plan is explained at length in the "Dadant System of Beekeeping." That is where Mr. Tissot got it, and it would be out of the question to detail the system to you in a single letter. The price of the book is $1.00. Allow me to say that in the production of comb honey, with eight-frame hives, there are always many swarms.

2. It is better to run for comb honey, with eight-frame hives in two stories, especially if you follow Dr. Miller's plan, detailed in his "Fifty Years Among the Bees." If you wish to change to extracted honey production, you had better change to larger hives. It will pay to do so.

3. The fertile worker colony had better be joined to another, as it will be very weak in the spring. However, you might try to save it by giving them the black queen you speak of, if you introduce another queen in place of this one, in the spring. A queen, fresh from the hive, is most usually accepted by a drone-laying worker colony, while a queen that has been shipped is nearly always destroyed in such a colony.

COMB HONEY QUESTIONS

1. While looking over some of my comb honey I noticed that some of the sections had from one to three small cracks in the surface of the comb; these were one or two inches long and run something like the track a snake would make in traveling. I am unable to say whether the cracks leak or not. Kindly advise what you think caused this, and remedy, etc.

2. Also kindly give some suggestions as to how to secure a section of honey that will weigh full sixteen ounces. Most of mine averaged about fourteen ounces, and I used a two-inch starter for foundation.

3. Would you please outline a good method of swarm control for comb honey production?

OHIO.

Answer.—1. The "snake tracks" that you noticed on the combs of honey are made by moth worms who have been feeding on the caps of the cells. Evidently you have kept your honey where the moths could get to lay eggs on the edges of the combs. Keep them in a cold place for a few weeks and those worms will die.

2. It is difficult to secure sections that will weigh sixteen ounces when full and sealed, although some do it. The best way is to give the bees full sheets of foundation in the sections. Dr. Miller used to place a sheet, in the section, that went to about an inch from the bottom; then he placed in a bottom starter about half an inch deep. The half inch between the two was filled by the bees and it made a fully built section.

3. There is no sure way to prevent swarming, especially when producing comb honey. But if you give your bees ample supers, have young queens, no drones, and give ample ventilation at the bottom, so that the bees will not lie out, and above all keep your hives well shaded from the sun, you will have a minimum of swarming.

INCREASE, FEEDING, DISEASE

1. I handle most of my bees in two standard ten-frame hives. I want to make some increase. How is the best plan? Should I feed the colonies to be divided some time before dividing, so they will be strong? I have plenty of honey to feed.

2. When feeding colonies short of stores, what can one do with the honey to be sure it will be free from American foulbrood? Should it be boiled?

3. I have two colonies with American foulbrood. They are very strong now and have plenty of honey. What is the best way to handle them?

4. Can frames out of these colonies be boiled and used again safely, or should combs and frames be burned?

MISSOURI.

Answer—1. You should first rear queen-cells from your best queens, by removing the queen and making a small colony with her, leaving all the young brood in the hive to rear queen-cells. At the end of nine days, count your queen-cells and make as many divisions as you have queen-cells, by removing most of the brood and placing the divided hive on a new stand. There are dozens of ways of doing this. On the tenth day give one of those queen-cells to each of the queenless colonies. This will give fine stock to every division. Of course you should feed, if your bees need it, as the queens will lay more if the colony is rich.

2. If there is any doubt about the honey used for feeding, it should be boiled for a half hour, over water. This will kill the germs of the disease.

3. When the crop is on, remove all the combs of those two colonies, burning up the brood and boiling the honey. Hive them on empty frames of comb foundation.

4. Yes, you can use those frames again, but they must be either boiled or singed with a tinner's torch before giving them back to the bees. The hives should be treated similarly. Some people advise burning up the whole thing. But if the work is carried on carefully, there will be no danger.

MOVING ENTIRE YARD SHORT DISTANCE IN THE SPRING

I am planning on moving my apiary this spring and would like to know if I would lose very many bees by doing so. I am planning on moving them about twenty-five rods from where they were last year.

MINNESOTA.

Answer.—If you bees are in the cellar, there will be but little trouble in moving them to a new place when you take them out. But as some old bees still remember the spot, it is well to prepare boards or obstructions of some sort, to place against the entrance, so that the bees, when flying out, will notice that there has been a change

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Untested queens, $1.00; 6, $5.00; 12, $9.00. Select untested, $1.25; 6, $6.00; 12, $11.00. Safe arrival and satisfaction guaranteed. Circular free.

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made in their entrance. This induces them to fly about, as young bees do the first time they fly, to recognize the spot

If your bees are out-of-doors, there will be more loss; yet if you move them just on the morning of the first warm day, it will be about as if they had been in the cellar. In any case, it is well to disturb them so as to let them know that something is wrong, so they may look around when they take their flight.

If any bees return to the old spot, bring one or two of your weakest hives back there. The lost bees will join them, and on the next day you may place them again in the new spot. Very few will then try to return, for after a scare of this kind they are usually careful about their location.

TO GET BEES FROM CREVICES AND HOLES

There are a great many swarms of bees in the ground and rocks here, mostly crevices or holes where the rock formation has decomposed, and I have found several swarms that are easy to get into, and I would appreciate some information about how to transfer them into hives, as the honeyflow is starting now. There are no trees here, so there are no other places for them to go into. In case I smoked a swarm into a hive and failed to get the queen, but put in some brood, would they make another queen?

I know very little about bees except they sting. One of the boys said if I used a hose on smoker and smoked them from back I could drive them into hive.

Any information you can give me will be appreciated. ARIZONA.

Answer—It is quite probable that the advice given you to use a hose with a bee smoker and smoke the bees out, from the back, is good. Of course, if you can dig out the swarm and get the combs as well as the bees, it will be still better. It is difficult to give advice in a general way, because each swarm must be in a different position.

You can readily smoke the bees out and the queen will most likely follow. If you do not smoke too much, but arrange to have the bees driven out, and if you can have some combs on which they would cluster when they leave their home, you would probably hive them without much trouble. If you get combs and they are not too heavy with honey, so that you can transfer them and attach them into frames especially if they have brood in them, you can transfer the bees with very litt'e trouble. I am sending you our little booklet about transferring bees, which may help you.

Of course, if a colony should lose its queen they can replace her, if given brood and eggs. The brood has to be less than three days old, just little grubs at the bottom of the cells. If the queen should fly away, there is some probability that most of the bees would go with her.

MANAGING TWO HIVE BODIES FOR BEST RESULTS

The writer is an amateur beekeeper with an apiary of five stands of bees, each with ten-frame Hoffman hives.

I have two hive bodies for each colony, and the colonies are of good strength. Our principal honey crop is derived from the sourwood, which will be in full blossom along about June 20. The writer has read quite a few pieces as regards the proper manipulation of the second hive body for the maximum honey production. However, I must confess that I do not quite understand just what should be done. VIRGINIA.

Answer—Examine your colonies. Some of them may not be as strong as you think and may not need more room. If there is brood in the upper story only, exchange the one for the other, so the queen may be at the bottom and may ascend up to the other if she is short of room. Then put on supers as needed.

If you are afraid that they will swarm, put all the brood except one comb into another body, leaving the queen and the one comb down below. Then put a third story on top and put the hive with the brood at the top of the pile. In this case you must put an excluder between the bottom story and the others, to keep the queen below. You must of course supply frames of foundation in all the empty spaces, so they may build up rapidly.

This method of swarm prevention is called the "Demaree method." It is useful with small hives, such as the eight- and ten-frame Langstroth. We do not use it with our large hives.

You must at all times make sure that the bees have plenty of room for honey during the crop.

SKUNKS MORE BENEFICIAL THAN INJURIOUS

Can you tell me if skunks eat honey, or what might attract them to a bee yard? It hardly seems probable that so small an animal could actually force its way into a hive to get at the combs, yet there must be something to call them to the yard. Any information on the subject would be most gratefully received. INDIANA.

Answer.—I have never had any experience with skunks in the apiary myself. But there are plenty of evidences that skunks are fond of honey and of bees. If you have any back numbers of the American Bee Journal, you will find skunks mentioned on pages 240 and 453 of 1926, and on pages 44 and 546 of 1928.

They are also mentioned in the A. B C and X Y Z of Bee Culture. On the whole, I believe the damage they do is slight, for they are simply accused of going at night, tapping on the hive and eating bees as they come out. They are fond of all kinds of insects and are more beneficial than injurious.

INCREASING TO THREE FROM TWO

Just beginning with bees and not having noted the approximate date of white clover blooming at this latitude, I wish you would assist me with advice on the following: I have four colonies in standard ten-frame and four in old box-hives that I got last year too late to transfer. Now, although a little early to look into, they all seem to be very strong, by the air and the entrances always being crowded by ingoing and outcoming bees. I wish to make increase by dividing each standard hive, leaving one-half on the old stand with their queen so as to keep all of its field bees, place the other half on the stand of one of the box-hives so it will be enlarged by field bees of box-hive, then set box hive on new stand with all of its brood and young bees. I will also provide a new queen for each without queen. Now what will be the attitude of the strange field bees towards the new, strange brood and young bees? In order to have all strong enough to make surplus, if a good year, how early must I do this, even if, after dividing, I feed syrup in the super to last until nectar flow? I need to know this so as to have queens arrive at right time.

The question is, how early should I do this? Or perhaps how late can I leave it and still divide before the swarming instinct is aroused? All this considered with a view of having the three from two and surplus. I thought that perhaps this division might suppress the swarm instinct, at least until after the clover run. IOWA.

Answer—1. The date of the full blooming of white clover varies to some extent, but the method used by the elder Dadant to specify the date of full bloom is to watch the arrival of the first blossoms and figure three weeks from that date as the middle of the bloom. Your method of procedure

will be all right, as it will weaken the box-hives and strengthen the others. You need not be afraid of any fighting or misbehavior in doing as you propose, because at that time there is nectar in the fields and the bees are almost always peaceable. Ordering the queens at the opening of the clover bloom will be all right. It would even do to wait till the clover is in almost full bloom, if your queen shipper is prompt.

2. As to preventing swarming by the manipulations you propose, there is always an element of doubt in it. Colonies that rear queen-cells at the time of swarms are always almost sure to cast swarms when the young queens emerge. This matter s discussed over and over again in the books and in the magazines. The main requirements for swarm prevention are: young queens, no drones, plenty of room for honey and brood, plenty of ventilation, and plenty of shade.

INDUCING SUPERSEDURE BY MOVING COMBS

1. We have for several years, after the colony was strong and the frames next to outside of hives were well filled with honey, practiced the plan of moving the central frames that were filled with brood to outside of hives, and the outside frames that were filled with honey to center of brood nest. The idea, as you know, was that the bees would have to move honey from center of brood nest in order to have room for queen to lay, and to have brood nest in normal condition, hence the honey in central frames would have to be moved by the bees to the supers.

However, we read an article from a writer in a bee paper a few days ago who claims that the above plan will cause the bees to supersede their queens. Do you recommend the above plan ,and do you think it will cause bees to supersede queens, as the writer claimed?

2. Very much of the honey in this part of the country last year was bitter and not fit for table use. The honey tasted like quinine or turpentine. Do you know of any plant or tree from which the bees would be likely to gather bitter honey?

VIRGINIA.

Answer—1. Moving combs containing honey to the center of the brood nest will do if the honey is not capped, as bees dislike to unseal the honey till they need it. You may uncap it first, however. As to this causing the bees to supersede their queen, I do not believe it will have any such effect. If the queen is old and does not fill the cells promptly enough with brood, the bees may supersede her, but this would happen about as readily if you did not move the combs.

2 There is one weed in the South which produces bitter honey, the bitter weed (Helenium tenuifolium). It does not take much honey from it to give a bitter taste to the crop. You will find this weed described in Pellett's "American Honey Plants."

PUTTING BEES ON COMBS FROM COLONIES LOST IN WINTER

I have one hive that I united with another colony. There is some dead brood in the combs (not much), but some just ready to come out. Can I keep this hive with the dead brood until the season when they swarm and put them in this hive, or should I cut all out and put new foundation in before hiving a swarm in this hive?

NORTH DAKOTA.

Answer—If the dead brood, in the hive in question, has died from winter cold, just cut it out and hive bees upon those combs. But if there is any doubt about it and a possibility that this brood has died of foulbrood, then you had best burn those combs and disinfect the hive by singeing it with a tinner's torch inside and out. If you do not know how to discover what that brood died of, you had best send a sample of it

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to your state inspector of apiaries, J. A. Munro, Fargo, North Dakota, and ask him to pass on it. He will give you instructions regarding it. One must be very careful with any suspected disease.

SOWING BUCKWHEAT FOR HONEY

Please advise me if it pays to sow buckwheat here for the use of bees.

ILLINOIS.

Answer—We believe it pays to sow buckwheat for honey production wherever the fall pasturage is inadequate. We used to furnish buckwheat seed to those of our neighbors who were willing to sow it, as we did not have enough land to sow much of it to buckwheat. Anyone within two miles of one's home is close enough to give some advantage to the bees. There are, however, some low lands where the fall blossoms are so plentiful that there is no gain in sowing buckwheat. The only disadvantage of buckwheat is the strong flavor and dark color of its honey, which is not of very ready sale.

Tariff Charges for Honey Asked

According to the March Association News Letter (North Dakota), Dr. J .L. Coulter, president of the Northwest Agricultural Foundation, reports that the Foundation has filed a brief with the Ways and Means Committee of the House of Representatives at Washington asking that honey be taken from the general agricultural tariff schedule and transferred to Section 5, which deals with sugar and related products, including maple sugar and syrups.

It is asked that the tariff on honey be increased from 4 cents per pound to 7 cents per pound, which is the same rate tentatively decided upon for maple syrup. The general proposal calls for a tariff of 3 cents per pound on sugar, and it is felt that the tariff on honey should be proportionately higher, or 7 cents per pound.

Iowa Foulbrood Law Amendment

The 1927 Code of Iowa regarding the appointment, duties, and rights of the state apiarist, Section 4038, is amended to read: "The board of supervisors of any county, when petitioned by not less than fifteen beekeepers of that county, may appropriate funds not to exceed six hundred dollars ($600.00) per annum from the general fund for purposes of eradicating diseases among bees. Such work of eradication shall be done in such county under the supervision of the state apiarist."

It is felt that this provision will enable the state apiarist to secure more funds with which to conduct the campaign against bee diseases in Iowa. There was very little opposition in the legislature to the provision. There is an increasing appreciation in Iowa of the value of bees to agriculture in general, and the beekeepers have also added now the support of the horticultural interests.

Swarms, Strawberries and Honey

By Betty Bee

SWARMING season is here again. Swarming is rather a delicate subject at our house. Not that John and I disagree as to management, etc., but just because my John never really seems able to forget my first experience in that line, and the subject of swarms invariably brings that sly twinkle of merriment which is a preliminary signal for one of his pet stories.

It happened in the early days of our married life. John had been called away for a few days and everything was left to my care. Now one fine morning I missed the geese, the old gander and all the goslings. This family had recently come into our possession and we were intensely proud of them. I had no doubt they were on their way to the neighboring pond, half a mile away, for they took uncanny delight in wandering down there. Consequently, as trusted guardian of the family treasure, off I started after them, across lots, over meadows and plowed fields, through hedges and tall thickets. I located them finally, and after considerable argument and persuasion they condescended to discontinue the family bath and we started toward home. The sun grew very warm and I was tired, so after a while we stopped to rest under the trees near the tumbledown cabin, an abandoned homestead of the first owner of the farm. It stood a pathetic reminder of the courageous persistency, the fortitude and hopeful ambitions of those early mid-west pioneers. About it clustered tall lilac bushes and clambering honeysuckles, suggestive of love for beauty and home. Since the geese were resting contentedly, exchanging occasional remarks in their own language, I fell to dreaming of the men, women and children who had years ago lived in the little house and who doubtless loved it as all people do the home they have toiled to obtain. All had grown old and gone, as I in turn would grow old and go. What had life meant to them? What did it mean to me?

Then gradually in the summer stillness came the gentle, insistent sound of circling wings. I sat up, looked about. I listened. Yes, there it was, the sound all beekeepers learn to recognize. Circling, circling all about, above the old lilacs and the little cabin, among the trees. I ran beyond the bushes. There they were, thousands and thousands of eager little homeseekers, ever circling, around, around, here and there. A swarm—I must have it! Now I had seen John hive many a swarm; besides, the bee books told just how to do it. Of course I could. Geese forgotten, my one absorbing interest became the capture of that swarm. Stumbling over plowed ground and through hedges, back home I ran as fast as I could. With what frenzy I gathered veil, smoker, water pail and empty hive, and thus burdened struggled back toward the scene of my adventure.

I saw myself the proud owner of a colony bubbling over with bees, six supers or more high, blue ribbons at the fair, a fat pocketbook, then the joyous possessor of a much-coveted piece of furniture; just then, a truly magnificent quarter-sawed oak library table! Breathless and perspiring, I finally arrived to find the bees beginning to cluster on a branch of one of the scrubby old apple trees. I brought water from the spring and energetically assisted them, a most thrilling and exhausting process, I assure you. With tense nerves I carefully arranged my stage settings under the prospective cluster as per bee journal directions and my John's example. Then, unmindful of womanly dignity and propriety, I proceeded to climb the tree to shake them off. I am thankful even now no spectators in human form were present. From beyond the bushes I could hear the amused chuckle of the old gander and the condescending remarks of the geese, no doubt discussing my idiotic awkwardness. But it is results that count, and finally the poor bees were dislodged and dropped with a sickening thud upon what I hoped would prove their new home. I know all these high-up scientists assure us bees have no minds; but this swarm of mine had—minds all of their own, and they had them all firmly and finally made up **not** to adopt my perfectly new house I had lugged half a mile for their express accommodation. Time after time we repeated our gymnastic performances,

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but to no avail. In desperation I dropped down to rest, and there beside the doorstep of the cabin I saw a handful of bees energetically fanning, determination written on every quivering wing. I looked closer. The step, constructed by some more recent householder, was a stout box about two and one-half feet square, made of two-inch planks, one end nailed up entirely, the other end partly open. Well, if my bees preferred this style of domicile to my nicely proportioned one, they should have it (for a time at least); so, by energetic lifting, this sturdy doorstep with its handful of bees was gently and gradually moved underneath the branch, my own hive discarded, and the process of climbing, shaking, smoking and sprinkling began as before. But this time success crowned my labor. The bees took to it immediately and joyously signalled to their family, "Here is home." I waited a long, long time, until they were snugly settled. Then, fastening a board over the open side of the step and leaving them a nice, wide entrance, I gathered up my equipment, coralled my geese, and went home, a tired but perfectly happy woman.

At twilight, still dreaming of blue ribbons, prize honey sections, shiny, polished library tables, and John's respectful congratulations, I returned, and, tacking on the entrance some wire screen, I laborously gathered my precious possession up in my arms and struggled homeward. I know I walked miles and miles, and they weighed a thousand pounds before I got there, but I had succeeded in my enterprise. I was joyously happy.

John arrived unexpectedly on a very early morning train, and, although I had planned it as an absolute surprise, I simply had to tell him of my glorious adventure. I even explained about the prize honey and the library table. Thus proudly in the gray of the early morning we went out to view them. John cautiously took off the screen and we peeped in. . . Not one bee was in sight! Not even a drone! They were gone. I had lugged home **an absolutely empty step of two-inch planks!** The only proof I had that there had ever been a bee there was one tiny, tiny little bit of white comb about the size of a small button, left to me as a peace offering, no doubt, by the departing bees. Gone! All my hard work for nothing! All my dreams! How John laughed! How he teased me! How the size of that step increased as the years pass! Each time he tells the story the step is bigger and heavier. At first it was only one step; then it was six; now it is part of a porch. I suppose it will be the entire cabin before long.

But one fine morning, a few weeks after, there unexpectedly appeared in our living room the biggest, shiniest, quarter-sawed oak table imaginable, with a card attached in dear old John's familiar writing, "To the Lady of the Doorstep, from her Bees."

But just as June brings swarms, so does it bring that most delicious of fruits, ripe strawberries, which, because of their vitamins B and C and their rich supply of calcium, sodium, potassium, magnesium, phosphorous and iron, are body builders as well as cleansers, and their refreshing alkalinizing action is most needed in our diet. Let us learn to use them in as many ways as possible, **without sugar,** which ruins their excellence as a food, but with honey, which emphasizes their perfection both as a body builder and as an appetizer.

Strawberry Shortcake—To many of us the old-fashioned shortcake is a most delicious way of serving them. I like what we call my "Five-minute honey cake" as its foundation. Sift together one and three-fourths cups of flour and two teaspoons baking powder into a large mixing bowl. To this add one cup warmed honey. Break two eggs in a cup and add sweet cream to fill the remainder. Add to the flour and honey. Beat all ingredients with Dover egg beater five minutes. It should be extremely light and foamy. Bake in muffin tins. It makes twelve. While warm, place on individual service plates, surround with ripe crushed strawberries sweetened to taste with honey, and top with a generous helping of whipped cream and a spoonful of honey.

Brown Rice with Strawberries—Parboil in double boiler until tender one cup of brown rice, two and one-half cups milk and one-half teaspoonful salt. When rice is cooked add one tablespoon butter and stir gently. In the meantime prepare one pint of ripe strawberries, wash and drain well, add one-fourth to one-half cup of honey, and let stand in warm place to sweeten. Serve the rice in sauce dishes with the strawberries over it and with cream or whipped cream, honey sweetened.

June Salad—Mix lightly two cups halved strawberries and one and one-half cups cubed cooked pineapple. On the serving plate arrange a layer of lettuce leaves, upon which heap the pineapple-strawberry mixture, and surround with a ring of sliced bananas. Pour the salad dressing given below over it and garnish with a little whipped cream sweetened with honey.

Honey Fruit Salad Dressing—Combine in the order given one-half cup olive oil, three tablespoons of honey, two tablespoons lemon juice

and a pinch of salt. Beat until thoroughly blended. Chill. Excellent for any salad where olive oil is preferred.

Strawberry Sandwiches—If you are hostess for an afternoon affair this month, your guests will be delighted with strawberry sandwiches. Butter thin slices of honey rye or honey water bread (see American Bee Journal, April, 1929, page 172); put together with a filling made of halved strawberries combined with a little cream cheese and sweetened with honey. These sandwiches are delicious.

Strawberry Delight—Wash, stem, and crush slightly one quart of ripe strawberries. Add one-half cup of honey and one-fourth pound of quartered marshmallows. Let stand an hour to chill and blend. Serve in individual sherbets with a garnishing of whipped cream and honey.

Honey - Strawberry - Grapefruit Salad—Peel and section two grapefruit; remove all skin. Place sections in honey for one-half hour. Then carefully split and arrange four on each serving plate on a bed of lettuce. Alternate the grapefruit with fine, large strawberries, and serve with a mayonnaise made of whipped cream, honey sweetened, to which you have added two tablespoons of the grapefruit juice.

Meetings and Events

Hilker Appointed Bee Inspector

Fred C. Hilker, of Boulder, Colorado, was reappointed county bee inspector for a two-year term, by the board of county commissioners.

J. B. D.

San Luis Valley Beekeepers Organize

The San Luis Valley Beekeepers' Association, La Jara, Colorado, has been organized with E. H. Wadleigh, La Jara, president; F. G. Rauchfuss, La Jara, vice-president, and Mrs. Alice Lampe, of Alamosa, secretary-treasurer.

The season lasts only a short time in the valley, but the high price of alfalfa hay causes the farmers to plant large crops of alfalfa, and the bees find excellent picking from the myriad of blossoms. J. B. D.

Pammel's Bulletin to Be Published

Mention has appeared in these columns in times past of the monumental work on "Honey Plants of Iowa," being prepared by Dr. L. H. Pammel. Iowa beekeepers will be interested to know that the Legislature recently made provision for its publication and that its completion may be expected some time next year.

Iowa beekeepers with notes of interest concerning any honey plant

(Continued on page 308)

Better Bred Italian Queens

SPECIAL .45 EACH

Am making this special price to introduce more of my queens.

Two pound package with queen $2.45
Each additional pound of bees 1.00

There has never been any disease known here

CALVERT APIARIES, Calvert, Alabama

A. L. Webb, Prop.

At Last!---A *Real Automatic Four-Frame Extractor*

It is a pleasure to announce that we have perfected a Superior Automatic Four-Frame Extractor and some of these are now going through our factory on production schedule.

The same high-grade materials; skilled workmanship; extremely strong, rigid comb-pockets; automatic handle release; and other features which make our Superior Two-Frame Reversible the success that it is, are also built into the Automatic Four-Frame Reversible. It has been put through the hardest possible tests and we know that you, too, will be highly pleased by its efficient performance.

Being the largest manufacturers of extractors, our production permits us to offer this extractor to you at a substantial saving in price under any others on the market. There are none better made. Sold on our money back guarantee.

[Makers also of "Back-Lot" Single-Frame and "Back-Lot" Two-Frame Extractors—Superior Two-Frame Reversible Extractors—Cappings Extractor Baskets—Coolsmoke Bee Smokers—Plain and Steam-Heated Uncapping Knives—Honey Storage Tanks.]

THE STANDARD CHURN COMPANY

WAPAKONETA, OHIO

For 57 years building honest goods and giving fair, square, honest treatment.

Dealers and Beekeepers, write for full details and special low prices.

GUS DITTMER COMPANY SPECIALTIES

Working your Wax into foundation for you for cash, and Dittmer's Non-Sag Brood Foundation

Our Non-Sag Brood Foundation has given absolute satisfaction the past season. Not one word of fault, but any number of commendations. Our foundation business doubled last season, and we are ready to book your orders now. Write us for samples and prices for early orders, which will in all cases be as satisfactory as the quality of our foundation. We furnish a full line of hives, sections, and all other supplies.

GUS DITTMER COMPANY, Augusta, Wis.

QUEENS---YANCEY HUSTLERS

Beautiful Three-band Italians. Record Honey-makers

Untested, 75c each; $8.00 per dozen; $75.00 per hundred
Tested, $1.25 each; $12.00 per dozen

Only one grade shipped—Select. Every queen guaranteed to please you. Reduced prices on package bees

CANEY VALLEY APIARIES, Bay City, Texas

Yancey Bros., Owners

TO SERVE YOU WELL

CONTINENTAL CAN COMPANY, Inc. now has 28 factories and 22 sales offices situated at strategic points throughout the country.

At your disposal are Continental's thoroughly equipped research and development laboratories, constantly devising better packages, and better methods of preserving all products, and in many other ways rendering unusual service to our customers.

Continental *is* large in resources — in personnel—in factories and equipment — but not too large to faithfully carry out the *"Continental Idea"* of close personal supervision of each inquiry and each order and bringing to our customers, present and prospective, a wealth of experience, together with the Continental ability to render excellent service.

You will be interested in knowing every "Key Man", as well as a majority of Continental's employees are stockholders. As partners in the business, they all have a deep interest and pride in Continental's success. They have the will, experience and equipment to produce the utmost in quality of products and in service with all that this implies.

CONTINENTAL CAN COMPANY, INC.

COAST TO COAST

"It's Better Packed in Tin"

Crop and Market Report

Compiled by M. G. Dadant

For our June report we asked reporters to answer the following questions:

1. Is moisture sufficient for nectar flow needs?
2. Are bees in normal condition?
3. What are the prospects generally?
4. If you have had honeyflows, how do they compare with 1928?

MOISTURE CONDITIONS

The universal condition of plenty of rainfall seems to predominate over the entire section east of the Mississippi River. In fact most reporters state that there has been too much rain entirely and that bees were prevented from getting out. However, this is not an unsatisfactory sign for the future.

Some exceptions are southern Florida, in which conditions are too dry. In Minnesota and parts of Wisconsin the rainfall has perhaps not been up to expectations.

In the section west of the Mississippi River, southern Texas is too dry and both Arizona and New Mexico are complaining of dry conditions. The entire state of California has also not had sufficient rainfall, and as a consequence honey plants are not in satisfactory condition. In the intermountain area perhaps moisture conditions have been normal, but as there does not seem to be an excess of snow there may be perhaps a shortage for irrigation later on.

CONDITION OF BEES

As stated in our previous report, the loss of bees this year has been in excess considerably of a year ago. This is especially true in the east and central west sections as referred to the beekeeper who did not pack carefully and put his bees in proper winter quarters.

In the Southeast, conditions have been normal and the condition of bees is very satisfactory. In the northern areas the bees came out in satisfactory condition, have built up very fast, and in many sections we have swarming on the slightest provocation. Reports from Tennessee are that bees are swarming with the beginning of white clover bloom and prospects excellent.

In the intermountain territory there has been excessive losses of bees, and this extends even to some of the more experienced beekeepers. Authentic reports would lead us to believe that the losses have run from 30 to 50 per cent and that the condition of bees at present is not much over 75 per cent of normal, with a great deal of loss to be made up.

The same situation to a less extent is true of the Pacific Coast states, especially California, where conditions have been bad all through the spring, and the condition of bees is now only approaching normal with the orange flow, which has just been harvested. Part of California has been so cold that bees are far from normal. Conditions are the same in Texas and along the coast.

Our idea would be that, of all sections, conditions approached nearer normal in the Southeast and the East and central West.

HONEY PROSPECTS

The East and central West seem to be in for a big white clover flow this year. At least the advanced conditions would so indicate if climatic conditions are favorable at the time the clover is in bloom. There is ample moisture everywhere for the honeyflow, and it only remains for proper conditions during the time the plants are in bloom to assure at least a desirable crop.

In the Atlantic Coast states conditions are very favorable and tulip and sourwood both are fine. Tulip has been prevented from an excessive yield by inclement weather at times. However, the yield has been satisfactory. In the Southeast prospects are favorable in Georgia, but have been cut down by floods and unfavorable weather. Prospects are unfavorable in Florida and not up to normal in Alabama and Mississippi, nor in Louisiana.

East Texas looks good; south Texas may be normal by catching up on the late flows. In the plains states prospects are above normal. Arizona and New Mexico can hardly have as much as last year, and it will hurry the California situation to make up for the shortage of orange flow by additional quantity of sage and other crops. Northern California especially looks like it would not come up to 1928.

In the intermountain territory much remains to be seen. Conditions are just coming out of dormant and, with bees in such unfavorable conditions and with such losses, require intensive work on the part of beekeepers to get in condition for the honeyflows, which, however, are late and which may help in alleviating the condition.

HONEYFLOWS

In the north half of the country, of course, it has been too early to report any honeyflow. The fruit bloom was badly interfered with by cool and wet weather, and dandelion has been undergoing the same experience, although some few sections report a magnificent flow from dandelion alone.

The tulip flow in Virginia and the Carolinas has been satisfactory, but not as large as it might have been had the weather conditions been right. Sourwood seems to be coming on and conditions are above normal. In Georgia the flow has been heavy, but interfered with also by rain, but it will probably be in excess of last year. Florida, in the central and southern part, has had very little flow, and the Appalachicola region has been interfered with by heavy floods and too much rain. The same conditions exist pretty well throughout the whole South. In New Mexico and Arizona the early flows have hardly been the counterpart of 1928, and in southern California the orange flow was very late and was not perhaps in excess of 60 per cent of 1928. All in all, the early flows have not been as satisfactory as a year ago and chiefly because of inclement, cool weather and too much rainfall.

SUMMARY

Summarizing the whole situation as to prospects ahead, it appears as though the Southeast could hardly equal the amount of honey gathered last year. Texas may have favorable conditions from now on and may exceed the 1928 crop. Arizona and New Mexico will hardly equal it, and it will take a universal reform for California and Washington and Oregon to have as much honey as in 1928.

In the intermountain territory the results in honey are problematical. Judging it from afar, we would hardly anticipate as much honey as last year, except perhaps in Wyoming and Montana and eastern Colorado.

The plains states, including the Dakotas, are in excellent shape, South Dakota especially reporting conditions above normal. In North Dakota bees are in desirable condition, but there seems to be quite a plowing up of sweet clover acreage and some beekeepers are considering the necessity of moving to heavier fields.

It is in the central West and East that the conditions look extremely propitious. We have seldom recalled a year where the conditions were so universally desirable as they are now. New York especially is highly enthusiastic over the prospects in spite of the fact that the winter and spring have not been favorable. Of course, the conditions which we have had of excessive rain and cool weather have meant feeding generally throughout the whole area.

All in all, we would infer that crop conditions are not above normal in any sections except the East, central West, and perhaps the Virginias and Carolinas. It remains to be seen whether the prospects in these areas will be carried into fulfillment.

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This Is Your Market Place

—where you may buy, sell or exchange at moderate cost — only 7 cents a word. Count each word of your message, including name and address. Our advertisers tell us: "IT PAYS." Send your ad for the very next issue now to reach us by the 15th. Terms: Send remittance with copy and order. Minimum ad ten words.

Only **7c** *a word*

You Sell Quicker by Telling More

Ads as small as ten words, costing only 70c, are accepted here, but our regular advertisers have demonstrated that it pays to tell more. Use enough words to thoroughly describe your offering and you'll sell quicker. Address all orders or inquiries to the Classified Advertising Department of the American Bee Journal, Hamilton, Illinois.

Will sell your Honey, Flowers, Poultry, Fruit, Pets (as rabbits, etc.) and more . . . . Is your ad here?

As a measure of precaution to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

Advertisements of used beekeeping equipment or of bees on combs must be accompanied by a certificate of inspection from an authorized inspector.

Copy for this department must reach us not later than the fifteenth of each month preceding date of issue. If intended for classified department, it should be so stated when advertisement is sent.

BEES AND QUEENS

FOR SALE—Italian bees and queens, 75c each, $8.00 per dozen. One pound of bees with queen, $2.10; two pounds with queen, $3.90. All charges paid to your postoffice. Write for prices on larger orders. Graydon Bros., Route 4, Greenville, Ala.

MY famous leather-colored Italian queenbees, June 10 and after, $1.00, or six for $5.00. J. W Romberger, 3113 Locust St., St. Joseph, Mo.

THE FOUNDATION OF SUCCESSFUL BEEKEEPING — Beekeeping authorities agree that young queens of good quality are essential for better wintering and good honey crops.

Good queens and good beekeeping are inseparable.

There is nothing else like Cutts' queens. They are distinctive in quality and character.

They are your big help for better crops and bigger profits.

One untested, 80c; twelve for $9.00. Tested, $1.50 each. Description and complete price list, also prices on quantities, upon request. Safe arrival and satisfaction guaranteed. Health certificate with each shipment.

J. M. Cutts & Sons, R. 1, Montgomery, Ala.

PACKAGE BEES — Pure Italians. Two pounds with queen, $3.25. Inspection certificate. The Alexandria Apiaries, "In the Heart of Louisiana," 1415 Sixth street, Alexandria, La.

GOLDEN ITALIAN queens of highest quality and most careful breeding. Producing large, hustling bees, very gentle and beautiful. Yellow to the tip. My queens are from a proven honey producing strain. Select untested, $1.00 each; 6 to 12, 90c each; 12 or more, 80c each; 100 for $70.00. Select tested, $2.50 each. Safe arrival and satisfaction guaranteed. Try my goldens; they will please you. W. C. Wright, Holt, Mo.

THREE-BANDED Italian bees and queens, ready June 1. Highest grade untested queens, $1.00 each; six, $5.00; twelve, $9.00; fifty, $35.00. Two-pound package with queen, $4.00 each. Three-frame nuclei with queen, $5.00. Full colonies. I guarantee safe arrival anywhere, no disease, and a square deal to all. Nineteen years in the game. A. E. Crandall, Berlin, Conn.

GOLDEN ITALIAN QUEENS—Producing large, beautiful bees, solid yellow to tip. Queens, untested, $1.25; select untested, $1.50; select tested, $3.00 each. Ask for circular for package bees. Dr. White Bee Co., Sandia, Texas.

CHOICE, bright Italian queens that are a pleasure to work with and you will be proud to own. Requeen with stock that has been bred and selected in the North the past 26 years for good wintering, hustlers, gentle and fine color. One queen, $1.00; dozen, $10.00. Breeders, $10.00. Emil W. Gutekunst, Colden, N. Y.

SMITH'S QUEENS—Backed by a money back guarantee at 50c each. The best queens for the lowest prices. N. B. Smith & Co., Calhoun, Ala.

BRIGHT three-banded Italian queens—the kind that pleases everyone. One, 70c; 12 lots, 65c each; 50, 60c each; 100, 55c each. Health certificate. Safe arrival. Satisfaction guaranteed. Taylor Apiaries, Luverne, Ala.

SERVICEABLE, money worth Italian queens. Select untested, $1.00 each; $9.00 per dozen; $50.00 per hundred. Circular free. R. V. Stearns, Brady, Texas.

GOLDEN Italian queens for sale. Only one grade, select. Safe arrival and satisfaction guaranteed. Untested: One, 75c; six, $4.50; twelve, $8.00. Satisfied customers for thirty years. Your order will be appreciated. E. A. Simmons Apairies, Greenville, Ala.

CAUCASIANS—Unequalled honey producers; do not swarm readily; very prolific and gentle. Northern bred queens now ready. Untested: 1 to 10, $1.50; 11 to 25; $1.35; 26 to 50, $1.25; 51 up, $1.15. C. A. Bird, Odebolt, Iowa.

FOR SALE—Some fine yellow Italian queens, untested, $1.00 each. Ready to mail May 20. Satisfaction guaranteed. J. F. Michael, R. 1, Winchester, Ind.

PACKAGE BEES—Gentle, hardy northern. Write for reduced, bargain prices. Van's Honey Farms, Hebron, Ind.

"SHE-SUITS-ME" Italian queens. One 80c; six, $4.00. Send for circular. See advertisement in January issue. Allen Latham, Norwichtown, Conn.

IF you want bees that are gentle to handle, good honey gatherers and beautiful to look at, my strain of golden Italians will please you. Prices. Untested, $1.05; six, $5.50; twelve to forty-nine, 80 cents. each; fifty or more, 75 cents each. Tested, $1.50 each. Health certificate, safe arrival and satisfaction. Hazel V. Bonkemeyer, R. 2, Randleman, N. C.

SIMMONS ITALIAN QUEENS—Ready May first. One, $1.00; six, $5.50; twelve, $10.00. Long distance orders by air mail. Get our prices on nuclei. Fairmount Apiary, Livingston, N. Y.

GOLDEN Italian queens and nuclei (or package bees) for 1929, the big, bright, hustling kind (the kind that gets the honey). Satisfied customers everywhere. Untested, $1.00 each; 6, $5.00; 12, $10.00; 100, $75.00. Tested, $2.00 each. Two-frame nuclei or two-pound package with queen, $4.50 each; ten or more, $4.00 each. Safe arrival guaranteed. Health certificate furnished. E. F. Day, Honoraville, Ala.

PETERMAN'S select Italian queens, also package bees. Queens: 1, $1.00; 6, $5.50; 12, $10.00; 25, $20.00; 50 or 100, 75c each. H. Peterman, Lathrop, Calif.

THAGARD'S ITALIAN QUEENS — Bred from breeders direct from Italy. Untested: One, $1.00; six, $4.50; twelve, $7.20. V. R. Thagard Co., Greenville, Ala.

JUNE TO SEPT. 30, 1929—Choice golden Italian queens, 70c mail. It pays to requeen with good, young queens for production. They are gentle and easy to handle. Golden queens at Victor Prevot Apiary, Mansura, La.

GOLDEN Italian queens producing beautiful bees, yellow to tip. Untested, $1.00; select untested, $1.50; tested, $2.00. Health certificate. Safe arrival guaranteed. H. G. Karns, Victoria, Va.

REACROFT selected Italian queens: One 90c; ten $8.50. Quantity prices on application. Satisfaction guaranteed. George H. Rea, Reynoldsville, Pa.

GOLDEN ITALIAN queens, producing golden bees; very gentle, good honey gatherers. State inspected. Tested, $1.50; select tested, $2.50. Untested, $1.00; six for $5.40; twelve or more, 80c each. After June 30, 10c less each on untested, 25c less each on tested and select tested. D. T. Gaster, R. 2, Randleman, N. C.

QUEENS AND PACKAGE BEES—Prices reasonable. Safe delivery. Louisiana Southern Bee Farm, Baton Rouge, La.

SAME OLD PACKAGE—Two pounds Italian bees, two combs (Hoffman frames), young Italian queen laying, to you. Same old price—six dollars per single package. Same old terms—one-fifth down to book order. May delivery, f. o. b. Same old Jes Dalton, St. Francisville, La.

BRIGHT Italian queens, ones that are guaranteed to please you or your money refunded. Untested, any number, 75c each. Safe arrival guaranteed. Honoraville Bee Company, Honoraville, Ala.

LISTEN—If you desire to purchase high grade Italian bees and queens, write The Carolina Bee Co. for circular and price list. W. O. Curtis, Manager, Graham, N. C.

DIEMER QUEENS—Bright three-band Italians, before June 15, $1.00 each; after June 15, 75 cents each. Mailed to you in my double-barrel introducing cage. Write for circular giving price of package bees. J. F. Diemer, Liberty, Mo.

CYPRIAN QUEENS—Untested, $1.50 each. E. J. Vaught, 3435 Chestnut St., Oakland, Calif. All shipments by air mail starting about March 10.

GOLDEN Italian queens, untested, $1.00 each; twelve, $9.00; six, $5.00. Breeders, $5.00 to $10.00. Tested, $2.50 each. Thirty years' a golden breeder, and they stand second to none. J. B. Brockwell, Barnetts, Va.

ITALIAN BEES AND QUEENS—Two-pound package without queen, $3.00. Untested queen, $1.00; tested, $1.50. Add price of queen wanted. Safe arrival after May 10. Birdie M. Hartle, 924 Pleasant Street, Reynoldsville, Pa.

CHOICE queens by return mail. Three-banded Italian queens, each, 80c; tested, $1.00 each. Jul. Buegeler, Alice, Texas.

QUEENS AND BEES—Italians, golden and Carniolans. Tested, $1.00; untested, 75c each. Bees, $1.00 per pound. Satisfaction guaranteed. C. B. Bankston, Box 65, Buffalo, Texas.

LEATHER COLORED ITALIAN QUEENS—$2.00; after June 1, $1.00. Tested, $2.00.
A. W. Yates,
15 Chapman St. Hartford, Conn.

HIGHEST grade Italian queens—Tested, $1.50; untested, 75 cents. Package bees, one pound, $1.50; two pounds, $2.50; three pounds, $3.25. Have had no disease. State inspection certificate with each shipment. Safe delivery guaranteed.
T. L. Davis, Buffalo, Leon Co., Texas.

THRIFTY Caucasian queens from daughters of imported mothers. After April 15: One, $1.50; twelve, $14.00. Safe arrival. Tillery Bros., Greenville, Ala., R. 6, U. S. A.

FOR SALE

FOR SALE—Four-frame hand extractor at $18.00; one two-frame at $8.00. Guaranteed to be in good condition. A. A. Martin, Mitchell, Neb.

FOR SALE—Four-frame Root reversible extractor, two-frame power extractor, comb honey supers, fences, holders, power saw, 3½-H. P. gasoline engine. Winkler Honey Co., Joliet, Ill.

FOR SALE—Two used honey pumps, size one inch, in good condition. W. M. Peacock, Mapleton, Iowa.

FOR SALE—Sixteen 4x5x1⅞ section supers, complete, new, nailed and painted, never used, and 700 sections. Twenty dollars takes them. W. L. Smithey, Strother, Mo.

FOR SALE—500 drawn combs in standard Hoffman frames. Health certificate furnished. Benson Bee Line, Galena, Ill.

FOR SALE—No. 1 buckwheat comb honey, $3.00 per case; No. 1. amber, $3.50. Six case carriers. H. G. Quirin, Bellevue, Ohio.

FOR SALE—100 used ten-frame hives, excluders, etc. Herbert Kietzer, Vernon Center, Minn.

FIVE-GALLON used cans. Special price 25c case of two, f. o. b. New York, until stock exhausted; good condition. Order quick to secure. Arthur H. Hoffman, Inc., 1043 Wyckoff Ave., Brooklyn, N. Y.

QUEEN introducing cage, 30c; four, $1.00. See larger advertisement, April number, page 158. O. S. Rexford, Winsted, Conn.

HONEY AND BEESWAX

WANTED—Light honey. Mail sample and price. Cottrell Craig Pl., Lombard, Ill.

FOR SALE—White and alsike clover extracted honey; 1929 crop. Prices and sample on request. Rockward Nusbaum, Box 294, Frederick, Md.

HONEY (comb and extracted), pure maple syrup, maple sugar and sorghum molasses. Special price to quantity buyers. C. J. Morrison, 1235 Lincoln Way West, South Bend, Ind.

WHITE CLOVER in 2-60, 10c pound. Buckwheat and clover blend, 2-60, 7½c. One-pound sample, 25c in stamps. F. W. Summerfield, Grand Rapids, Ohio.

HONEY FOR SALE—Best quality, lowest prices. D. Steengrafe, 116 Broad Street, New York.

"CLOVER HONEY—Comb and extracted. Dr. E. Kohn & Sons, Grover Hill, Ohio."

HONEY FOR SALE—Any kind, any quantity. The John G. Paton Co.,
217 Broadway, New York.

HONEY FOR EVERY PURPOSE—We have it in any amount; light amber and white clover, basswood, sweet clover, buckwheat. Write us what you need and ask for prices. A. I. Root Company of Chicago, 224-230 West Huron Street, Chicago, Illinois.

STURDEVANT'S CLOVER HONEY — St. Paul, Neb. Any quantity.

WANTED—Car lots of honey. State quantity, shipping point and price. Mail sample. Hamilton, Wallace & Bryant, Los Angeles, Calif.

HONEY FOR SALE—All grades, any quantity. H. & S. Honey and Wax Company, Inc., 265 Greenwich St., New York City.

NEW CROP shallow frame comb honey, also section honey; nice white stock, securely packed, available for shipment now. Colorado Honey Prod. Ass'n, Denver, Colo.

HONEY FOR SALE — White and amber honey in 60-lb., 10-lb. and 5-lb. tins. Write for prices.
Dadant & Sons, Hamilton, Illinois.

SHALLOW frame white comb honey and white extracted honey.
The Colorado Honey Prod. Ass'n,
Denver, Colo.

FOR SALE—Northern white, extracted and comb honey.
M. W. Cousineau, Moorhead, Minn.

FOR SALE—Our own crop white clover and amber fall honey in barrels and cans. State quantity wanted and we will quote prices. Samples on request.
Dadant & Sons, Hamilton, Illinois.

WANTED—Light honey. Mail sample. Van's Honey Farms, Hebron, Ind.

SUPPLIES

SEVERAL ten-frame hives with metal covers at $12.50 for five; bodies, $6.00 for five, and other bargains. Gerald Linn, East Pleasant Plain, Iowa.

TWO-FRAME, non-reversible extractor, $12; two 15-gallon honey tanks, $2.50 each; five 4x5 section supers, 80c each; forty shallow extracting frames with drawn combs from wired foundation, 12½c each. Above used two seasons; in first-class condition. No disease. Satisfaction guaranteed. O. S. Ward, Obion, Tenn.

FOR SALE—Foundation, bee brushes, comb honey cartons, feeders, nailed and painted bodies, bottoms, covers, and bodies, veils, sections, a big assortment of frames, excluders, comb and extracting supers k. d., and many other items in good, usable condition. Reason for selling, items no longer listed in our catalog. Prices the lowest anywhere for the value. You can address G. B. Lewis Company, at Watertown, Wis., Albany, N. Y., Lynchburg, Va., Texarkana, Ark., or Sioux City, Iowa.

SAGGED COMBS are result of slackened wires caused by wires cutting soft wood of frames. Use metal eyelets. Per 1,000, 60c. Handy tool for inserting eyelets, 25c. Postage 3c per 1,000.
Superior Honey Co., Ogden, Utah.

FOR SALE—High quality queen mailing cages; also Root's bee supplies. Write for prices. Hamilton Bee Supply Co., Almont, Mich.

BEST QUALITY bee supplies, attractive prices, prompt shipment. Illustrated catalog on request. We buy beeswax at all times and remit promptly.
The Colorado Honey Producers' Ass'n,
Denver, Colo.

ROBINSON'S comb foundation will please the bees, and the price will please the beekeeper. Wax worked at lowest rates. E. S. Robinson, Mayville, Chau. Co., N. Y.

"BEEWARE" and Dadant's Wired Foundation for the Northwest. Catalog prices. F. O. B. Fromberg, Montana. Beeswax wanted. Write for prices.
B. F. Smith, Jr., Fromberg, Mont.

MISCELLANEOUS

FREE—One gallon white paint with $40.00 order for Root bee supplies at regular catalog price. May only. Cash with order. Mail coupon today. A. V. Small, Augusta, Kansas.

"HOME SANITARIUM" tells what to do and how to do to become well and stay well. See it and be convinced. Sent on approval. Price $3.50. The Witness, Baxter, Iowa.

LEARN from Will Grover, Bristol, Vermont, to find wild bees.

MAKE queen introduction sure. One Safin cage by mail, 25c; 5 for $1.00.
Allen Latham, Norwichtown, Conn.

GEORGE S. DEMUTH is editor-in-chief of Gleanings in Bee Culture. Its field editor is E. R. Root. This means a most carefully edited, able bee journal. Subscription price, two years for $1.00. Write for sample copy. Gleanings in Bee Culture, Medina, Ohio.

FOR SALE—We are constantly accumulating bee supplies, slightly shopworn; odd sized, surpluses, etc., which we desire to dispose of and on which we can quote you bargain prices. Write for complete list of our bargain material. We can save you money on items you may desire from it.
Dadant & Sons, Hamilton, Illinois.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so send us a list.
American Bee Journal, Hamilton, Ill.

THE DADANT SYSTEM IN ITALIAN—The "Dadant System of Beekeeping" is now published in Italian, 'Il Systema d'Apicoltura Dadant.'" Send orders to the American Bee Journal. Price $1.00.

WANTED

WANTED—Experienced, able-bodied man for extracted honey. State age, experience and wages expected. A. E. Schellhorn, Huntley, Mont.

RABBITS

RABBITS—Chinchillas, standard and heavy weight; black silver fox rabbits. Pedigree stock, eligible to register. Write your wants. H. G. Lieske, Fairwater, Wis.

MOTT'S NORTHERN BRED ITALIAN QUEENS

Reared 350 feet from the postoffice. Your orders on the desk in 20 minutes from the train. Saves a day in and day out by R. F. D. clerks. Select and guaranteed purely mated. Why buy hybrids? See list. June and May, $1.25; 12, $13.00. June 1, $1.00; 6, $5.75; 12, $11.50; 45, $45.00; 100, $85.00. Select tested, $2.00; virgins, 50c. No disease. Safe delivery and satisfaction guaranteed.
E. E. MOTT & SON, Glenwood, Mich.

CANADIAN BEEKEEPERS

Chrysler's Process Foundation

In E-V-E-R-Y TEST the V-E-R-Y BEST

Made of pure Beeswax, Perfect Milling and Refining

CHRYSLER'S Lock-End, End Spacing Top Bar BROOD FRAMES are the strongest and more quickly assembled than any frame made.

Send for our Catalogue.

W. A. CHRYSLER & SON, Chatham, Ont., Canada

American Honey Institute

(Continued from page 277)

who were delighted with the most appropriate suggestion.

In a letter to the Institute, Mr. R. W. Knox, of the Food Educational Bureau, says: "We are very glad to cooperate with you, and our educational workers are using honey in various recipes. They get in direct contact with many women and school children and in that way can give out good recipe suggestions."

The Institute Grows

The American Honey Institute enters its second year confident of its ability to do its work of creating interest in the larger use of honey. Malitta D. Fischer, long associated with the industry as assistant to Professor Wilson at the University of Wisconsin, has moved with her family to Indianapolis, where she has joined the staff of the American Honey Institute. She will prepare and send to the editors of the home departments of journals and newspapers new recipes and uses for honey; she will write honey articles for magazines; prepare exhibits for conventions of food manufacturers, teachers, health workers and home makers; devise new formulas for cake bakers and confectioners; train demonstrators and salesmen, and will carry the work of the Institute wherever it may be helpful.

Laboratories for Honey Research

No large increase in the use of honey is possible unless there is a sound understanding of its value in nutrition and of its adaptability as a sweetening and flavoring agent in the preparation of special products. The Institute has realized the need of a laboratory service which gives special attention to the problems brought to it.

Arrangements have therefore been made by which the services of the Commercial Laboratories will be available to the Institute. These laboratories, established years ago by Dr. Barnard, when he was state food commissioner, have again been acquired by him and will be operated under the direction of his son, T. Harvie Barnard. Mr. Barnard is a graduate of Northwestern University and the University of Minnesota and has for a number of years been connected with the milling and baking industry.

Honey in the Packing House

Honey-cured ham is no new temptation to hungry people. Honey was used to preserve and improve meats thousands of years before artificial refrigeration was called upon to hold the food supply in condition. It has always been recognized as a safe preserving agent, but not until these modern days has its true antiseptic value been determined.

With the development of methods for keeping perishable foods in the warehouses and in the kitchen, it has become unnecessary to use honey to preserve meats, and now its use in the curing of hams, bacon, tongue, and other fine products is due to the superior quality in taste, flavor, and tenderness developed by honey. When the appetite appeal of honey-cured brands is added to the above quality, their value is increased both to the packer and the consumer.

Fred W. Muth, of Cincinnati, has sent the Institute samples of beef tongues cured in honey. They are certainly a joy to the lover of fine foods. At Toledo, Ohio, the Home Packing Company produces White Honey Brand Hams, which rank high in the list of meat delicacies.

In writing about these hams, the management of the company says: "We have been using honey in our curing formula for some time and are satisfied we get a flavor far superior to any cure which does not contain honey."

These are only two examples of the use of honey in curing meats. Honey producers and dealers will do their industry a service by bringing the names of all brands of honey-cured meats to the attention of this Institute.

Meetings and Events

(Continued from page 303)

common to this region should communicate with Dr. Pammel at Ames, as it is important that he be given the fullest possible cooperation in securing information of value to the bee men.

Miss Ruth Suckow Honored

Miss Ruth Suckow, owner and manager of the Orchard Apiary at Earlville, Iowa, was the subject for special mention by the editor of Harpers' Monthly Magazine for April. It is narrated that as a contributor to that magazine her stories are true to the rural life of her state.

J. B. D.

Crisco Advertises Honey

The Crisco people use the Denver newspapers to advertise the value of honey. It is so seldom that we see honey extolled in a newspaper, we are so much pleased with the advertisement that we pass it along so that others may see just what others think of honey, and what we should think of it and boost its sale. The recipe is credited to a cooking expert:

Honey Bran Muffins

(Mixing time: 10 minutes)

Nature's oldest and purest sweet—honey—joins two other natural foods—fruit and whole wheat—in these quick muffins. And Crisco, the sweetest, freshest-flavored shortening you could possibly imagine, lends its freshness and pure flavor to the ensemble.

4 tablespoons melted Crisco	½ cup bread flour
1 egg, beaten	2 cups bran
½ cup honey	1½ teaspoon soda
1½ cups thick sour milk	1½ teaspoon salt
1 cup whole wheat flour	1 teaspoon baking powder
	¾ cup raisins or chopped dates

Light and set oven at 375° F. (medium oven). Melt sufficient Crisco for recipe and to brush into muffin tins. Beat the egg, stir in the honey and sour milk. Sift the two kinds of flour with soda, salt and baking powder, mix with the bran and stir into the first mixture. Add raisins and melted Crisco and beat well. Fill Criscoed muffin tins half full with batter. Bake in medium oven (375°

THREE-BANDED ITALIAN BEES

2 lb. Package with Queen . $4.25
1 Untested Queen 1.00
1 Tested Queen 1.50

Discount on quantity

Inspection Certificate with each

J. ALLEN, Catherine, Alabama

SERVICEABLE, MONEY WORTH

ITALIAN QUEENS

Select untested, $1.00 each.
$9.00 per dozen, $50.00 per hundred
Circular free

R. V. STEARNS, Brady, Texas

GOLD MEDAL QUEENS AND PACKAGE BEES

PROMPT SERVICE AND HIGHEST QUALITY

in past years has made both you and us SUCCESSFUL

Safe arrival and satisfaction guaranteed

	1-24	25-49	50-100
3-lb. Packages and Queens	$4.00	$3.75	$3.50
2-lb. Packages and Queens	3.50	3.25	3.00
If Caucasian Queens are wanted, add 25c per package extra			
Italian Queens	1.00	.85	.75
Caucasian Queens	1.25	1.10	1.00

VALLEY BEE AND HONEY CO., P. O. BOX 703, WESLACO, TEXAS

Charter Member No. 11, Texas Association of Queen Breeders and Bee Dealers

F.) from 20 to 25 minutes. This makes 24 large muffins. I have reheated these muffins when they were a week old and found that Crisco had kept them fresh and moist.

J. B. D.

Wakefield President of Utah County Association

J. F. Wakefield, of Provo, was elected president of the Utah County Honey Producers' Association at the annual meeting of the organization held here recently. Vice-presidents from the northern, central and southern parts of the county were selected as follows: Lewis Christensen, of Lehi, Lawrence Hone of Provo, and C. E. McBeth of Payson. O. R. Baird was reelected secretary.

Discussion of shipping was taken up at the meeting and it was decided that information of the subject from various manufacturers of the product would be secured for the next meeting of the organization, to be held in the first part of May. Some by-laws for the organization are being drafted and will be considered at that time.

Four-County Beekeepers' Institute

Fulton and Williams counties, Ohio; Lenawee and Hillsdale counties, Michigan, had a Four County Beekeepers' Institute at the Consolidated High School at Fayette, Ohio, on April 15, which seems to have been very successful.

Kelty, of Michigan; E. R. Root, of Medina; Mr. Krebs, apiary inspector of Michigan; Mr. Reese, the Ohio inspector; Mr. Yost, the Indiana inspector; Mary Barber, from the Kellogg Company of Battle Creek, and other local speakers were on the program.

An interesting feature was the demonstrations of short cuts for handling package bees, the uses of honey, in addition to the talks. All the beekeepers and their wives and sweethearts brought articles made of honey, to be served in the pot luck refreshments in the mid-afternoon, with the Kellogg Company furnishing Kaffee Hag.

Such a meeting as this was worthy of a state convention.

D. N. Dillon, Michigan.

Utah Honey Poster Contest

To stimulate interest and also sales in honey, a popular Utah industry, a Utah Honey Poster Contest is being conducted in Salt Lake City among the school children.

This year, in addition to awarding $40 first prize for the honey poster, the University of Utah is offering a one-year scholarship in case a senior student wins the prize. Other cash prizes are being awarded.

Bee men report that this honey poster contest reacts favorably upon honey sales.

Continental Can Company, Inc., Acquires McDonald Machine Company of Chicago

Announcement is made by the Continental Can Company, Inc., of the acquisition of the McDonald Machine Company of Chicago, Illinois, manufacturers of can-making machinery.

The McDonald Machine Company, established in 1903, is one of the leading manufacturers in its line, supplying both domestic and foreign users.

Sales of the company in the first quarter of 1929 were about two-thirds of the total sales in 1928. Business has increased rapidly in recent years, 1928 sales being more than 60 per cent ahead of sales in 1924. The present plant was erected in 1920 and is one of the most modern and efficient of its kind in the country, with ample space for expansion of facilities as needed.

This acquisition further rounds out the business of the Continental Can Company, Inc., and in conjunction with present properties owned by the company, provides it with facilities for manufacturing a complete line of can-making machinery.

A Thoroughly Reliable

4 Frame Extractor $18.50

This very excellent extractor is our No. 54 Four-frame Novice non-reversible extractor, long sold by us. To the many true and tried features of this good extractor we have now added that of our new comb-fitting electrically-welded pockets. With these pockets fewer combs are broken than with any other extractor. It is strong and staunch, but light enough to meet especially the needs of beekeepers who want a light but thoroughly efficient machine that can easily be carried from yard to yard.

4-Frame Novice, $18.50

Its High Points of Excellence

Staunchly Made in Every Part.
Easiest Running 4-frame Extractor Made.
Ball-bearing.
Form-Fitting Pockets (Patent Applied For) Prevent Comb Breaking.
Does Twice the Work of a Two-frame in Same Time.
Gets All the Available Honey.

The Two-Frame Novice

For the beginner or back-lot beekeeper, the Two-frame Novice extractor meets every requirement. It is the lightest and strongest good extractor ever built. Has only two moving parts, is ball-bearing, runs so easily that a child can turn it. Can be carried without effort by one hand. Will handle 60 combs an hour and get all the available honey.

Price $13.95

2-Frame Novice, $13.95

The A. I. Root Company

Medina, Ohio

Need Bee Supplies?

Our new 1929 bee supply catalog is ready.

WRITE FOR YOUR COPY

Quality---Service---Satisfaction

Our warehouse is filled with Leahy's Standard Bee Supplies. All cut from selected white pine lumber. (Cypress bottom boards.) Our business is to see that your order is taken care of promptly. Every article is guaranteed to please you.

Send your orders and inquiries to us

W. R. Perry Company

414-416 South 11th Street

OMAHA, NEBR.

HERE YOU ARE

QUEENS 50c EACH
ANY NUMBER

Quality Bred, Untested Italian Queens Now Only 50c each, Any Number

York's usual high quality; nothing cheap but price. Every queen guaranteed to be satisfactory or money back. These queens are reared from our best select breeders and are good, uniform size. No culls shipped. Place your orders now for queens. You cannot buy better. We are prepared to give you service.

PACKAGE BEES WITH QUEENS

Two-pound, $3.00 each; ten or more, $2.75 each. Three-pound size $1.00 each more. These packages are ideal for late increase. Prompt shipments assured. Safe arrival guaranteed.

YORK BEE COMPANY

(H. F. YORK, Owner)

JESUP, GEORGIA

JENSEN'S

Pure Three Banded Italians

Can still supply some package bees if your locality affords summer or early fall honeyflows. However, the package rush is over and we have again enlarged on our queen yards to adequately care for the queen trade.

Why the necessary continuous expansion here? Highly satisfactory Bees, Queens, and Service must be the answer. Our standard for everything in our line is high; which does not mean that we are satisfied, but hope to still improve, and, by combining our experience with volume, to keep giving the greatest bee and queen values possible.

You will always find us in line (when you compare prices), quality and service considered. QUALITY plus SERVICE by Jensen means SATISFACTION.

Remainder of season prices as follows:

2-lb. packages with select untested queens, $2.75	1 or
3-lb. packages with select untested queens, $3.65	100

QUEENS—Untested, 1 or 1,000, 50c each.
Tested (3 to 6 months old), $1.00 each.
Breeders, $5.00 to $7.50.

We guarantee: Pure mating of all queens, arrival in good condition, and satisfaction.

JENSEN'S APIARIES

CRAWFORD, MISSISSIPPI

SHIPPING CASES

AT WHOLESALE PRICES

Comb honey shipping cases, glass front, hold 24 sections 4¼x1⅞, fibre lined, 50 for	$14.75
Five-pound pails, per hundred	6.40
Special prices by the thousand	
One-pound fluted jars with lacquer caps, in fibre reshipping cases, per gross	5.00
Frame-nailing device, saves time; $1.50 value	.90
Eight-inch uncapping knife	1.15
Quinby depth frames, per hundred	5.00

Fixtures for 4x5 supers at 20 per cent off.

We carry carload quantity Bee Supplies, manufactured by the leading manufacturers in the country.

CATALOG FREE

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